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EPA Superfund
Record of Decision:

SHRIVER'S CORNER
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STRABAN TOWNSHIP, PA
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Text:

RECORD OF DECISION
SHRIVER'S CORNER SITE
DECLARATION

SITE AND LOCATION

Shriver's Corner Site
Straban Township, Adams County, Pennsylvania

STATEMENT AND PURPOSE

This of Decision (ROD) presents the selected remedial action for the Shriver's Corner Site in Township, Adams County, Pennsylvania (the "Site"), developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 as ameneded by the Superfund Amendments and Reauthorization Act, (CERCLA), 42 U.S.C. §§ 9651 et. seq. and is consistent, to the extent practicable, with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Part 300.

The supporting this remedial action is contained in the Administrative Record for the Site.

The Commonwealth of Pennsylvania has not concured with the selected remedy at this time.

ASSESSMENT OF THE SITE.

Pursuant to duly delegated authority, I hereby determine, in accordance with Section 106 of CERCLA, 42 U.S.C. § 9606, that actual or threatened releases of hazardous substances from this Site, as discussed in the Summary of Site Risks, if not addressed by implementing the response action selected in this Record of Decision, may present an imminent and substantial endangerment to public health, welfare or the environment.

DESCRIPTION OF THE SELECTED REMEDY

The remedy for the Site will meet the requirements of the National Contingency Plan (NCP) 40 CFR Part 400 §300.430 (e)(I) (A)(2) and §300.430 (e)(I)(C) by reducing groundwater contamination levels to the Maximum Contaminant Levels (MCLs), set forth in the National Primary Drinking Water Regulations, 40CFR §§141.11-12 and 141.61-62 (NPDWRs) or to 1 x 10-6 health-based risk levels for the compounds for which MCLs are not established. The selected remedy will also protect the public from exposure to contaminated groundwater and contaminated soil. The selected remedy will also protect aquatic life by removal of the contaminated sediment. In summary, the selected remedy will provide both short-term and long-term protection of human health and the environment. The selected remedy as described below is the only planned CERCLA response action for the Site.

The elements of the selected remedy are:

- Provision of an alternate water supply to the currently affected residences from a single community supply well.
- Construction and operation of a groundwater extraction and treatment system that will contain, extract and treat contaminated groundwater. The on-site treatment process will include air-stripping with carbo adsorption for air emission control.
- Discharge of the treated groundwater to the Western Tributary, and/or Rock Creek, or for use as a nonpotable water supply.
- Provision of periodic groundwater monitoring during and after completion of the groundwater remediation.
- Excavation and disposal off-site all contaminated soil from the Upper Culp Area and Shealer Area that exceed the cleanup criterion.
- Excavation and disposal off-site all contaminated sediment from the Culp Tributary that exceed the cleanup criterion.

DECLARATION OF STATUTORY DETERMINATIONS

The selected remedy is protective of human health and the environment complies with Federal and State requirements that are legally applicable or relevant and appropriate to the Remedial Action and is cost-effective. This remedy utilizes permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable and satisfies the statutory preference for remedies that

employ treatment that reduces toxicity, mobility or volume as a principal element.

Because some contaminated groundwater may remain at the Site, the 5-year site reviews will apply to this action, as required by Section 121 (c) of CERCLA, 42 U.S.C. § 9621 (c), to ensure that the remedy continues to provide adequate protection to human health and the environment.
<IMG SRC 093201>

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Thomas C. Voltaggio, Director
Hazardous Waste Management Division
U.S. EPA, Region III

Dated

RECORD OF DECISION

SHRIVER'S CORNER SITE
Straban Township, Adams County, Pennsylvania

Decision Summary

I. SITE NAME, LOCATION, AND DESCRIPTION

The Shriver's Corner Site (the "Site") consists of two areas. One area known as the "Shealer Area", located south of Route 394 (Shriver's Corner Road), is owned partly by Fredrick Shealer and partly by the Estate of Thomas Shealer. The Shealer Area has an area of approximately two acres. The other area, known as the "Culp Area" is located on a property owned by the Estate of Sarah Culp, located north of route 394 and is referred to as the Culp Area of the Site. The Site is situated approximately four miles north-northeast of Gettysburg, Pennysylvania and about 2.5 miles southeast of Biglerville, Pennsylvania. The Site location map is shown on Figure 1 in Appendix A. Both the Shealer Area and Culp Area are shown in Figure 2 in Appendix A.

The Culp Area, as shown on Figure 2, consists of three parcels of land which were initially suspected to be contaminated on the basis of available historical data and historical aerial photographs. One parcel, referred to as the Upper Culp Area, is approximately 0.7 acres in size and is located north of the driveway entering the Culp Area and west of Culp Road, a gravel access road extending northeast from Shriver's Corner Road. The second parcel, referred to as the Lower Culp Area, is approximately 0.2 acres in size and is located along the Western Tributary. The third parcel, identified as the Culp Junkyard Area (the property was formerly used as a junkyard), is located just east of the Upper Culp Area and is approximately seven acres in size.

II. SITE HISTORY AND ENFORCEMENT ACTIVITIES

During the period from 1969 to 1980, drums of paint sludge, industrial solvents, and miscellaneous demolition waste some of which contained hazardous substances, were disposed of at both the Culp and Shealer Areas. Some of the hazardous substances dumped at the Site were generated at an elevator manufacturing plant owned by Westinghouse Electric Corporation (Westinghouse) and located along Route 34 in Cumberland Township, Adams County, Pennsylvania. Other hazardous substances dumped at the Site were generated at the Susquehanna Pfaltzgraff Company (Pfaltzgraff) plant located in York, York County, Pennsylvania. Westinghouse and Pfaltzgraff arranged with Mr. Fred Shealer for the transportation and disposal of hazardous wastes generated by their plants during that period.

The materials used by Westinghouse at its plant included, but were not limited to, trichloroethylene (TCE), 1,1,1 trichloroethane (1,1,1 TCA), phenol, toluene, ethyl-benzene, cadmium, chromium, lead, selenium, silver, mercury, copper, nickel and zinc. The Westinghouse wastes were disposed of on both the Shealer and the Culp Area. The Pfaltgraff wastes some of which contained lead, were disposed of on the Shealer Area.

On March 22, 1984, the Environmental Protection Agency ("EPA") issued an Administrative Order on Consent (AOC) to Westinghouse pursuant to Section 106 of CERCLA, 42 U.S.C. § 9606, requiring Westinghouse to remove drums, soils, and sludge containing hazardous substances from the Shriver's Corner Site and from other sites in the Gettysburg area, and to provide emergency alternate water supplies to a number of residents affected by the contamination of the sites. Westinghouse, working under this AOC, removed 80 surface drums from the Culp and Shealer Areas in April 1984, and also removed 250 cubic yards of stained soil from the Upper Culp Area.

In September 1986, EPA issued an AOC to Westinghouse and Mr. Fred Shealer to remove junk cars, engines, rusted empty drums, miscellaneous debris, and stained soil from the Shealer Area. A silt and snow fence was installed on the north and west sides of the area to reduce access and minimize storm-water runoff. Westinghouse performed the work under the AOC. In addition, three to four inches of clean soil were spread over the Shealer Area. Hay was spread on top of the soil to minimize erosion. Vegetation is currently

established in the Shealer Area and therefore the potential for erosion of contaminated soil is significantly reduced.

On or about March 4, 1987, the EPA issued an additional AOC to Westinghouse, according to Section 106 of CERCLA, 42 U.S.C. § 9606, requiting Westinghouse to perform a Remedial Investigation and Feasibility Study (RI/FS) of this Site. To date, Westinghouse has complied with the terms of the AOC. The findings of the RI/FS are provided in the following sections of this Decision Summary.

In 1991, upon finding a recently disposed bin containing flammable solvents on the Culp Area, EPA conducted a removal action to remove the contents of the bin. Five drums of consolidated materials were removed and disposed of under this removal action.

II. HIGHLIGHTS OF COMMUNITY PARTICIPATION

A fact sheet containing information about the RI/FS was distributed by EPA to state and local officials as well as to local citizens and media on April 5, 1995. EPA then conducted community interviews on April 10 and 11, 1995 to discuss Site activities with local citizens and officials.

EPA prepared and issued the Proposed Plan for the Site in June 1995 to facilitate public participation in the decision-making process regarding the cleanup alternatives. The Proposed Plan for the Site and all other documents that were used in developing the Proposed Plan are available to the public in the Administrative Record file located in the information repositories at the Adams County Public Library and the EPA Region III office in Philadelphia, Pennsylvania. The notice of availability of these documents was published in the Gettysburg Times on June 20, 1995. Following this announcement, EPA scheduled a public comment period from June 20 - July 20, 1995 to incorporate the communities input on the alternative presented in the Proposed Plan. At the request of Westinghouse and local citizens, EPA agreed to extend the public comment period to August 21, 1995. The notice of this extension was published in the Gettysburg Times on July 22, 1995.

EPA held a public meeting on the Proposed Plan on July 13, 1995, at Spangler's Restaurant, 25 Sandoe Rd., in Gettysburg, Pennsylvania. The public was notified of the meeting by an advertisement published in the June 20, 1995-edition of the Gettysburg Times. A fact sheet containing information about the alternatives in the Proposed Plan was distributed to state and local officials as well as local citizens and media on July 3, 1995.

At the public meeting, EPA representatives answered questions about conditions at the Site and the remedial alternatives under consideration. A response to the comments received during the public comment period, including those expressed verbally at the public meeting, is included in the Responsiveness Summary, which is part of this Record of Decision.

This ROD presents the selected remedial action for the Shriver's Corner Site in Straban Township, Adams County, Pennsylvania, chosen in accordance with CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. Part 300. The decision for this Site is based on the Administrative Record.

EPA has thus met the public participation requirements of Sections 113 (k) (2) (b) (I-v) and 117 of CERCLA.

IV. SUMMARY OF SITE CHARACTERISTICS

A. Site Geology and Hydrogeology

The topographic surface at the site slopes toward the northwest. Surface water from the Site drains northwest toward the Western Tributary, which is a tributary to Rock Creek.

Bedrock units of the Gettysburg Formation underlie the site. The Gettysburg Formation consists of interbedded layers of red and gray siltstones and shales. The interbedded nature of these rock units forms a multilayered "sandwich" of alternating shale and siltstone. These layers dip to the northwest about 35 degrees. The bedrock is overlain by approximately two to five feet of red to brown clay.

The upper 50-foot bedrock is generally fractured and weathered. Shallow groundwater flow at the site area generally follows topography. The weathered bedrock zone grades into less fractured deep bedrock. Groundwater flow in the deeper bedrock is strongly influenced by the structural orientation and stratigraphy of the Gettysburg Formation. Bedding plane fractures largely restrict movement of groundwater flow in the deeper bedrock. Bedding plane fractures generally form along the siltstone-shale interface. Zones of abundant water bearing bedding plane fractures are separated by thick relatively impermeable shale layers. Vertical fractures within the shale layers allow some ground water movement between the dipping water bearing zones. Contaminated groundwater moves through this network of fractures to the northwest. Both shallow and

deep groundwater eventually discharges to the Western Tributary.

B. Summary of the Remedial Investigation

The RI of the Site was conducted in two phases. Phase I was conducted to determine compounds of interest and physical characteristics of the Site such as geology, hydrogeology, soil characteristics, and geotechnical conditions; Phase II was conducted to assess the extent of contamination at the Site and to obtain the necessary data for the evaluation of remedial alternatives.

Following finalization of the RI Work Plan, a local resident identified a portion of the Upper Culp Area that was not addressed during the removal action or the RI/FS sampling. A subsequent visual inspection of the area was performed on April 3, 1991 to address this issue. The visual inspection revealed the dumping of waste material at isolated location throughout the area. Following the visual inspection, supplemental soil sampling was conducted by EPA on June 28, 1991 and August 25, 1993. The samples were collected from the areas of soil that were visually stained. Two of the six stained soil samples exhibited leachability characteristics slightly over the RCRA hazardous waste levels for lead and chromium. Thus, the sampling indicated that the waste material contains elevated concentrations of total chromium and lead results, which were also found in previous studies of the Shealer Area. Two reports on the findings of this investigation are also contained in the Administrative Record. The results of the sampling are shown in Tables 1 and 2 of Appendix B.

C. Remedial Investigation Findings

The areas/media evaluated as part of the RI/FS includes the following:

1. Groundwater

Twenty groundwater monitoring wells and one residential well were sampled during Phase I of the RI. Groundwater from forty-four monitoring wells, two springs Culp and Edling), two ponds (Culp and Edling) and five nearby residential wells were sampled and analyzed during Phase II of the RI.

A summary of the groundwater analytical data is as follows:

The contaminants of interest (COI) in groundwater for the Shriver's Corner Site have been in the RI/FS documents and include metals, volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs). A detailed listing of COI is contained in the Risk Assessment report which is a part of the RI/FS for this Site.

According to the RI groundwater analytical results, groundwater samples collected from both the Shealer Area and Culp Area monitoring wells contained certain chlorinated aliphatic hydrocarbons in excess of one percent of their effective solubility. These results indicate the probable presence of Dense Non-Aqueous Phase Liquids (DNAPLs). DNAPLs are immiscible liquids that are denser than water and do not readily dissolve in water. The probable presence of DNAPLs is supported by the historical on-Site waste disposal practices. The presence of DNAPL contamination may make it technically impracticable to restore the entire aquifer to MCLs or 10-6 health-based risk levels for the compounds for which MCLs are not established.

2. Surface Soil

A visual inspection of the Shealer Area revealed four isolated "hot spots" of soil that are visually stained with a greenish-brown material. The soil samples collected from the stained areas (Figure 3) showed elevated levels of metals including lead. The levels of lead in soil are above the EPA screening level of 400 mg/kg. In addition, the calculated Hazard Index for the future land use scenario is slightly higher than 1.0 as shown in Table 3. Generally, when the hazard index is higher than 1.0, remediation is required. Target Compound List (TCL) organics and Target Analyte List (TAL) metals were detected in Shealer Area soil samples above the reference background levels. In addition, two TCL pesticide compounds were also detected in one Shealer Area soil sample during Phase I of the RI. During test pit excavation, a white material that appeared to be a paint waste was encountered. One sample of this material indicated the presence of 1,1,1 TCA, the principal contaminant in groundwater at the Site. Among the metals, the most significant concentration found in the test pit soil samples was that of barium. This metal was detected at several orders of magnitude over the mean concentration of background soils found in the Gettysburg Area; however, it was less than the EPA Region III risk-based cleanup level for barium.

The supplemental sampling performed on the greenish-brown stained soil in the Upper Culp Area (Table 2) revealed that lead levels exceed the EPA action level of 400 mg/kg for Site soil. The results also revealed that elevated levels of cadmium and chromium are present in the stained soil. The levels of cadmium and chromium are, however, less than the Region III EPA health-based cleanup levels. Nonetheless, remediation of

the stained Soil exceeding 400 mg/kg lead will also indirectly result in the remediation of soil contaminated with cadmium and chromium.

3. Surface Water and Sediment

Surface water and sediment samples were collected from nearby streams to determine if the streams, which act as potential contaminant migration pathways, have received contamination from storm-water runoff at the Site or inflow of contaminated groundwater. The RI established the following with respect to Site streams:

With the exception of the presence of carbon disulfide detected in one sample, no TCL organic compounds were detected in surface water from the Western Tributary and its tributaries, namely, the Pond Tributary located south of the Shealer Area, and the Culp Tributary, an intermittent stream located on the Culp Area.

Five heavy metals (arsenic, cadmium, lead, manganese, and zinc) were detected in Site sediments at concentrations exceeding background levels. Of these, the predominant occurrence was of zinc in the sediments of the Culp Tributary where it passes through the Culp Junkyard Area. During the RI, bioassessment of the Culp Tributary was not performed as aquatic life was not observed in the tributary at the time of sampling.

A stream bioassessment was conducted to assess the biological impact of contaminants in the sediments in the Western Tributary. The bioassessment did not indicate that the Site was adversely impacting aquatic life in this stream.

V. SCOPE AND ROLE OF RESPONSE ACTIONS

The principal threat to human health and the environment at the Site is from volatile and semi-volatile compounds in the ground water. These contaminants have migrated into the fractured bedrock aquifer beneath the Site. The high concentration levels of these compounds in the shallow weathered portion of the bedrock aquifer indicate the probable presence of residual DNAPLs in this area. This possible free-phase liquid will slowly dissolve into the groundwater over a very long period of time and will act as a potential long-term source of groundwater contamination. At the Shriver's Corner Site, suspected DNAPLs are composed of 1,1,1 TCA and 1,1 DCE. The long-term objective of the remedial alternative for groundwater is to reduce the contamination to the Maximum Contaminant Levels ("MCLs") or 10-6 health-based risk level (the level where there is a probability of one in a million for developing cancer among the exposed population). However, no technology is known to exist that will effectively recover all DNAPLs in fractured bedrock. Therefore it may be not possible to achieve these (MCLs or 10-6 health-based risk level) cleanup levels in area where residual DNAPLs may be present. If DNAPLs are determined to be presents, the goal of the remedial action will be changed to containment of the spread of contamination from the DNAPL area. The design of the remedial action will such that the system will not require significant alteration if DNAPLs are determined to be present. The presence of DNAPLs will be determined by the information generated during the design and implementation of the remedy. The ground water remedial goal for area contaminated by dissolved inorganic contamination will remain the same. The short-term goal of the selected alternative is to provide an alternate water supply to the residents whose domestic wells are currently located in the contaminated groundwater plume, while the long-term restoration is being implemented. The selected alternative should also eliminate or restrict the use of on-site and nearby domestic wells to prevent an adverse effect on the long-term restoration process.

Additionally, there is potential for a direct contact exposure threat and possible impact to the groundwater due to the presence of contaminated soil at both the Shealer Area and Upper Culp Area of the Site. The scope and role of the selected alternative would also be to prevent a direct contact threat and to reduce the leaching of contamination to the groundwater.

Two sediment samples collected from the Culp Tributary located on the Culp Area portion of the Site showed unacceptable zinc levels for ecological receptors which may reside in the intermittent tributary. The scope and role of the selected alternative would include additional testing to better define the full extent of contamination and reduce the level of zinc in sediment to ecologically acceptable levels.

VI. SUMMARY OF SITE RISKS

This section of the ROD summarizes the results of the Human Health and Ecological Risk Assessment, which was performed as part of the RI/FS. The Baseline Risk Assessment provides the basis for taking action and indicates the exposure pathways that need to be addressed by remedial action. It also details the risks related to the no-action scenario.

A. Baseline Risk Assessment

A Baseline Risk Assessment (RA) was performed by Westinghouse as part of the RI and is contained in the

Administrative Record file for the Site. The RA considered the sampling and analytical results of the RI in detail, identified COI for environmental media at the Site, identified routes of exposure for site COI to human and environmental receptors, calculated increased in cancer risks and chronic toxicity hazards for those routes, assessed ecological impacts due to the presence of the contaminants, and discussed remedial action objectives for the Site, including contaminant-specific applicable or relevant and appropriate requirements "ARARs" and health-based cleanup criteria.

Note that EPA requires a Remedial Action at a site when the carcinogenic risk level exceeds 1 x 10-4, or in other words, when there is a probability of one in 10,000 developing cancer among the exposed population. The potential for health effects resulting from exposure to non-carcinogenic compounds is evaluated by comparing an estimated daily dose presented by Site conditions to an acceptable level. If this ratio exceeds 1.0, there is a potential for impact based on hazards from that particular compound. These ratios can be added for exposure to multiple contaminants. The sum, known as the Hazard Index, is not a mathematical prediction for the severity of toxic effects, but rather a numerical indicator of the transition from acceptable to unacceptable levels. The future and current calculated risk levels for other than lead compounds are shown in Tables 3 and 4, respectively.

Conclusions of the RA related to human health and the environment as follows:

1. Groundwater

Currently 5 home wells are contaminated with the Site contaminants. The Shealer Area is located adjacent to the residential backyards. The Culp area also located among the residential areas and used to have a house and a home well which is defunct now.

Current Land Use - The current land use for portions of the Site is residential. There are homes currently impacted by the Site along Shriver's Corner Road. Potential human health cancer risks under the current land-use scenario are above the 1 x 10-4 to x 10-6 target risk range and a hazard index is more than 1, if the temporary home treatment units and bottled water provided under the removal action were to be discontinued.

Future Land Use - The future land use scenario is residential. Under the future land-use scenario, cancer risks exceeded the 1 x 10-4 to 1 x 10-6 target risk range also the hazard indices exceeded 1.0 primarily when untreated groundwater from the Shealer Area and Upper Culp Area was assumed to be used as a potable source (i.e., for ingestion and bathing). Ingestion accounted for 90 to 99 percent of the total intake of contaminants in groundwater in this potential scenario.

2. Soil

Shealer Area soil contamination is within the property owned by Fredrick Shealer which is surrounded by residential properties having children. The Culp Area soil contamination is within the Culp Property and near the Culp Road.

Current Land Use- The current land use scenario is probable exposure due to trespassing. The Current land-use cancer risk is within or less than 1 x 10-4 to 1 x 10-6 risk range. The hazard indices are lower than 1. Also, some of the soil in the Shealer and the Upper Culp Area have lead levels which exceed the EPA screening level of 400 mg/kg.

Futur, Land Use-The future land-use scenario for soil is residential. Future cancer risks from exposure to surface soil were within or less than the 1 x 10-4 to 1 x 10-6 range for all areas. Under the future land-use scenario, the Hazard Index slightly exceeded 1.0 for on-site, youthful (child-age) residents, from exposure to certain surface soils from Shealer Area. Also, some of the soil in the Shealer Area and the Upper Culp Area have Area levels which exceed the EPA screening level of 400 mg/kg. Analytical results for soil samples collected from the Lower Culp Area showed concentrations of a few metals a above reference concentrations. The concentrations of TCL Organics, pesticides and PCBs were insignificant in the collected samples. The calculated range of risks and Hazard Indices are provided in Tables 3 and 4.

The screening level of 400 mg/kg was selected as the trigger for action at this site to reflect changes in lead Guidance for CERCLA sites and RCRA Corrective Action Facilities (OSWER Directive 9355.4-12, July 14, 1994). The risk assessment and the initiation of feasibility study had been completed before issuance of this guidance, and a lead concentration of 500 ppm had been used initially in those analyses, based on previous guidance (September 1989, OSWER Directive 9355.4-02; June 1990, OSWER Directive 9355.4-02A). The latest directive changes the screening level to 400 mg/kg. Given the limited scope of the lead action and to proceed expeditiously toward cleanup without unproductive reanalysis, the 400 mg/kg screening level was selected as the preliminary remediation goal. Integrated exposure level, as current practice under the new guidance, would not make a significant difference to the cost or scope of the remedy at this site.

B. Ecological Risk Assessment

1. Soil/Sediment

The risk levels calculated for ecological receptors were within acceptable ranges for COI in soil from the Culp Junkyard Area and for sediment from the Western Tributary. The risk levels calculated for ecological receptors residing in soils from the Shealer, Upper Culp and Lower Culp Areas, and zinc levels in sediment from the Culp Tributary were above NOAA ERM levels for ecological receptors.

VII. DESCRIPTION OF ALTERNATIVES

The Superfund process requires that the alternative selected to address a hazardous waste site meet several criteria. The alternative must be protective of human health and the environment and comply with ARARs. Permanent solutions to environmental problems should be developed whenever possible. The solutions should also reduce the volume, toxicity and mobility of the contaminants.

The Feasibility Study (FS) identified and evaluated a variety of technologies to determine if they were capable of reducing Site contaminants to MCLs or health-based risk levels for the compounds for which MCLs are not established. The technologies determined to be most applicable and potentially effective for each medium of concern were developed into remedial alternatives. These alternatives are presented and discussed below. Many other technologies not discussed below were also reviewed; however, they were screened out due to their lack of applicability based on the screening criteria. The screening of potential remedial processes is fully detailed in the Feasibility Study contained in the Administrative Record.

All costs and other considerations specified below are scoping estimates based on best available information. Present-worth is defined as the total cost, in 1994 dollars, of implementing the remedy including capital costs, and operation and maintenance costs of the remedial action for a period of 30 years.

This section presents a description of the four groundwater alternatives, six soil alternatives for the Shealer Area, three soil alternatives for the Upper Culp Area, and three sediment alternatives evaluated for the Culp Area. The alternatives are categorized based on the three media of interest, groundwater, surface soil, and sediment. All the alternatives given below would be implemented with strict adherence to the applicable OSHA regulations. Alternatives 1 and 2 apply to all Site media, while the other alternatives are categorized according to the media they address.

A. All Media

Alternative 1 - No Action

Estimated Capital Cost:	$0
Estimated Annual O&M Cost:	$0
Estimated Present-Worth Cost:	$0

The no-action alternative is retained as a baseline for comparison with other alternatives. Under the no-action alternative, remedial action would not be taken to remove, control migration, or minimize exposure to contaminants. Also, no effort would be made to control the future use of the property. Current use of in-home treatment units and bottled water would be discontinued.

Alternative 2 - Institutional Controls. Chain-Link Fences and Single Community Well Supply

Cost Type	Without the Fence	Fence Cost-Shealer Area	Fence Cost-Upper Culp Area	Total
Estimated Capital Cost:	$270,600 2	$18,750 3	$56,250	$345,600
Estimated Annual O&M Cost for first two years:	$194,600 1	$1,500	$4,500	$200,600
Estimated Annual O&M Cost after two years:	$52,400 2	$1,500	$4,500	$58,400
Estimated 5-year review cost (every fifth year):	$20,000	-	-	$20,000

Cost Type	Without the Fence	Fence Cost-Shealer Area	Fence Cost-Upper Culp Area	Total

Estimated Present-Worth Cost:	$1,356,200	$41,865	$125,595	$1,523,660

1. The cost estimate provided in the FS was revised and is reflected in the FS addendum. The cost shown in the table above includes quarterly sampling of the affected residential wells.
2. The cost estimate provided in the FS was revised and is reflected in the FS addendum.
3. The cost estimate provided includes the cost for an 8-foot fence instead of the 6-foot fence specified in the FS.

Alternative 2 consists of constructing a single community supply well upgradient of the groundwater contamination plume which would supply potable water to existing local residences having domestic wells drawing water from the contaminated aquifer. The estimated cost provided in the table is based on supplying water to the five currently affected residences. The proposed single community supply well will not serve more than 24 persons or have more than 14 connections.

Based on information obtained from discussions with representatives of the nearby water authorities (Gettysburg Water Authority and Biglerville Water Authority), a water line connection to the municipal water supply system is not practical due to the existing water supply shortage. However, a single community supply well can be installed upgradient of the Site as shown in Figure 4. This community supply well will abate the health threat from Site use of contaminated water. At present, the threat from the use of contaminated water is being mitigated by the point of use treatment units installed during the Removal Action. The community supply well is considered both cost-effective and implementable, as it involves construction of one operational treatment system in lieu of the present individual home treatment units

Alternative 2 also includes deed restrictions, access control (using fencing), and a groundwater monitoring program. Ongoing groundwater monitoring would help to contaminant migration, if any, and whether or not additional remedial measures are warranted in the future. Deed restrictions would restrict future development within the affected areas owned by any of the PEPS, thereby minimizing any potential impact to grounwater flow or disturbance of wastes remaining on the Site. The placement of a fence around the perimeter of the affected areas would deter trespassing.

Under a removal action, an eight-foot high chain-link fence was installed along the boundary of the Culp Area and Culp Road. The fence restricts access to the property from Culp Road. The cost shown herein reflects construction of an eight-foot high chain-link fence covering the other three sides ofthe Upper Culp Area and Culp Junkyard Area, as well as the Shealer Area. The total estimated length of the proposed fence for the Culp Area is 3,750 feet, or about three times the estimated length of 1,250 feet for the Shealer Area.

B. Groundwater

Groundwater Alternative 3 - Groundwater Extraction, Treatment, Discharge with Alternate Water Supply

Cost Type	Alt. 3 1	Alt. 2	Total
Estimated Capital Cost:	$921,710	$345,600	$1,267,310
Estimated Annual O&M Cost for the First Year:	$92,180	$200,600	$292,780
Estimated Annual O&M Cost for the Second Year:	$87,380	$200,600	$287,980
Estimated Annual O&M Cost after Second Year:	$58,580	$58,400	$116,980
Estimated 5-year review cost (every fifth year):	$0	$20,000	$20,000
Estimated Present-Worth Cost:	$1,880,400	$1,523,660	$3,404,060

1. The cost estimate provided in the FS was revised and is reflected in the FS addedurn. The cost was recalculated with off-gas treatment using carbon adsorption.

This alternative includes the measures to provide public health protection and access control of Alternative 2 as well as the construction and implementation of a groundwater remediation system. The key features of the groundwater remediation system include extracting contaminated groundwater and treating it on-site to reduce the contaminants to meet the requirements of the NCP by reducing groundwater contamination levels to MCLs or to 1 x 10-6 health-based risk levels for the compounds for which MCLs are no established. The

treated groundwater would then be discharged to the Western Tributary, and/or Rock Creek or used as a nonpotable water supply. The discharge of the treated groundwater will be required to meet substantive requirements of Pennsylvania's NPDES discharge permit.
Remediation of the contaminated groundwater will be accomplished by 1) installing and operating extraction wells and interception trench in both the Shealer Area and Upper Culp Area; (the appropriate number of extraction wells will be determined during the design) 2) removal of the contaminants from the groundwater using air stripping; 3) adsorption of the organic contaminants from the air stream via carbon adsorption; 4) and surface discharge of the treated groundwater to the Western Tributary, and/or Rock Creek or for use as a nonpotable water supply. It is not anticipated that a process for metals removal would be required in order to comply with the substantive requirements of the National Pollution Discharge Elimination System ("NPDES") permit; however, this determination will be made during the Remedial Design effort.

Spent carbon waste residues from the off-gas treatment system would be treated off-site in a RCRA-approved facility and in accordance with RCRA regulations. The pumping and treating of groundwater would potentially reduce contaminants to MCLs or to 1 x 10-6 health-based risk levels for the compounds for which MCLs are not established. Quarterly groundwater monitoring will be performed during the first two years, biannually for the next 3 years and annually there after to measure the effectiveness of the cleanup process. Since DNAPLs are iuspected to be present, the cleanup time for groundwater will take
considerably longer than if DNAPLs were not present. Thus, for cost estimating purposes, the remediation time was based on 30 years (the maximum period of performance used by EPA for cost estimating purposes). While the goal of this alternative is to restore the groundwater to MCLs or 10-6 health-based risk levels for the compounds for which MCLs are not established, the ability to achieve these levels throughout the plume cannot be determined until the extraction and treatment system has been designed, installed, operated,modified as necessary, and an assessment of the contaminant plume response is completed. Although the vertical extent of contamination has yet to be fully determined, for cost estimating purposes, it was assumed that the Site groundwater would need to be restored to 450 feet vertical depths. The proposed 450-foot depth is approximately 100 feet deeper than the deepest monitoring well (21B), located west of the Shealer Area and on the other side of the Western Tributary.

Groundwater Alternative No. 4: Groundwater Extraction, Treatment, Reinjection, Discharge, with Alternate Water Supply

Cost Type	Alt. 4	Alt. 2	Total
Estimated Capital Cost:	$1,355,340	$345,600	$1,700,940
Estimated Annual O&M Cost for the first year:	$88,850	$200,600	$289,450
Estimated Annual O&M Cost for the second year:	$107,050	$200,600	$307,650
Estimated Annual O&M Cost for even numbered years starting after the second year:	$78,250	$58,400	$136,650
Estimated Annual O&M Cost for odd numbered years starting after the second year:	$55,250	$58,400	$113,650
Estimated O&M Cost for the 15th and 25th year:	$118,450		$118,450

Cost Type	Alt. 4	Alt. 2	Total
Estimated 5-year review cost every fifth year:	-	$20,000	$20,000
Estimated Present-Worth Cost:	$2,481,300	$1,523,660	$4,007,960

This alternative includes the measures to provide public health protection and access control (Alternative 2) concurrently with the design and construction of a groundwater remediation system. This alternative was developed to aggressively achieve MCLs or 10-6 health-based risk levels (for the compounds for which MCLs are not established) of contaminants in groundwater in a shorter period than that required for Alternative 3. Reinjection of treated groundwater would likely enhance flushing of the contaminants.

This alternative involves: 1) extracting the contaminated groundwater using extraction wells and intercepting trenches; 2) treating the groundwater using air stripping with vapor-phase carbon adsorption; 3) reinjecting a portion of the treated groundwater using injection wells and trenches 4) and discharging the remaining treated water to the Western Tributary and/or Rock Creek under the substantive requirements ofa NPDES permit from the Commonwealth of Pennsylvania. If necessary, a metals removal process will be

incorporated into the treatment system to comply with the NPDES permit. The spent activated carbon would be treated off-site in accordance with RCRA regulations. The treatment system could potentially restore the contaminated aquifer to MCLs or 10-6 health-based risk levels for the compound for which MCLs are not established. Quarterly groundwater monitoring would be provided to measure the effectiveness of the cleanup. For the cost estimate, it was assumed that the contaminated aquifer up to 450 feet vertical depth, would need to be restored. Because DNAPL contamination is suspected, the groundwater cleanup is expected to last more than 30 years. However, for cost estimating purposes, the remediation time was based on 30 years (the maximum period of performance used by EPA for cost-estimating purposes).

Groundwater Alternative 5 - Bottled Water, Home Treatment Units, Institution Controls and Chain-Link Fences

Type of Cost	Alt. 5	Fence Cost-Shealer Area	Fence Cost-Upper Culp Area	Total
Estimated Capital Cost:	$67,000	$18,750	$56,250	$142,000
Estimated Annual O&M costs for first two years:	$122,100 1	$1,500	$4,500	$128,100
Estimated Annual O&M Costs after second year:	$117,800 1	$1,500	$4,500	$123,800
Estimated 5-year review cost (every fifth year):	$20,000	-	-	$20,000
Estimated Present-Worth Cost:	$1,455,700	$41,865	$125,595	$1,623,160

1. The cost estimate provided in the FS was revised. The revised costs provided in the table reflect the increased frequency of residential well sampling.

This alternative would extend the current provision of bottled water and wellhead treatment units for the affected residences. The cost estimates shown above are based on a 30-year period, and continuation of the current carbon filter sampling protocol of every 45 days.

Institutional control measures are the same as in Alternative 2, i.e.. deed restrictions and fencing of the Shealer Area and portions of the Upper Culp Area. These institutional controls would serve the same purpose as those described in Alternative 2.

C. Soil

1. Shealer Area

Soil Alternative 3 - Excavate and Dispose Off-Site

Estimated Capital Cost:	$834,470
Estimated Annual O&M Cost:	$0
Estimated Present-Worth Cost:	$834,470

For this alternative, the contaminated soil which exceeds the EPA action level of 400 mg/kg for lead would be excavated and taken off-site for treatment and/or disposal. Erosion and surface drainage controls would be established for the excavation phase. Post-excavation sampling and analysis would be used for verification that lead concentrations in the excavated area are below 400 mg/kg. The excavation would be backfilled with clean soil and revegated. The cost shown above also includes handling of the excavated soil from the grounwater collection trenches.

By removing the contaminated soil in the Shealer Area, the potential for a direct contact health threat would be greatly reduced. Perimeter air monitoring will be performed to measure fugitive emissions and if necessary, control measures will be implemented to ensure that nearby residents are not exposed to contaminants above permissible levels.

Soil Alternative 4 - In-situ Stabilization

Estimated Capital Cost:	$1,529,150
Estimated Annual O&M Cost:	$1,900

Estimated Present-Worth Cost: $1,558,400

Under this alternative, the Shealer Area soil would be treated to a depth of about two feet. the treatment would include stabilization of the soil through the addition of lime and metal-free cement kiln dust. Following treatment, the soil surface would be covered with a six-inch topsoil layer and revegetated. This alternative includes the provisions in Alternative 2, with the addition of surface drainage controls, a six-inch topsoil cover, a treatabillty study, in-situ stabilization, and post-excavation sampling and analysis for cleanup verification.

This alternative would render the contaminants in surface soil essentially immobile, thereby mitigating the potential for leaching and risks associated with direct contact. The soil stabilization alternative would not reduce the levels of contaminants to acceptable health-based risk levels, but the solidification matrix would make long-term inhalation, absorption, and ingestion more difficult, thus reducing the potential for exposure.

Soil Alternative 3 - Ex-situ Treatment

Estimated Capital Cost: $2,197,159

Estimated Annual O&M Cost: $1,900

Estimated Present-Worth Cost: $2,226,400

Under this alternative, the entire Shealer Area would be excavated to a depth of approximately two feet below the ground surface. The excavated soil would be treated by ex-situ soil washing and the treated soil would be returned to the excavated area. This alternative also includes the components of Alternative 2 as well as a treatability study, analytical testing, and the placement of six inches of topsoil over the treated soil.

The ex-situ treatment alternative would reduce the possibility of direct contact with contaminants in Shealer Area surface soil and would reduce the potential for cross-media effects.

Soil Alternative 6 - A Low-Permeability Cap System with Drainage Controls

Estimated Capital Cost: $450,000

Estimated Annual O&M Cost: $6,900

Estimated Present-Worth Cost: $556,700

This alternative would include the provisions in Alternative 2, as well as the installation of a protective, low-permeability cap system. The low-permeability cap system would consist of erosion controls and six inches of clean soil placed under a synthetic liner which will serve as a barrier to water infiltration. A drainage system consisting of a geotextile material, clean soil cover and a vegetative cover would also be incorporated into the protect cap.

The construction of a cap system would minimize the potential for direct contact with Shealer Area surface soil. The cap system would have to be excavated by trespassers to present a contact threat from the contaminants. The low-permeability cap system would sufficiently reduce the infiltration of surface water to protect against impact to groundwater.

2. Upper Culp Area

The following alternative has been developed as a remedy for the contaminated soil in the Upper Culp Area. This alternative is fundamentally similar to Soil Alternative 3 for the Shealer Area, as the COI are similar at both locations.

Soil Alternative 3 - Excavate and Dispose Off-Site

Estimated Capital Cost: $93,641

Estimated O&M Cost: $0

Estimated Present-Worth Cost: $93,641

Under this alternative, soil that appears visually contaminated will be sampled and analyzed for lead. Soil with lead levels above the EPA action level of 400 mg/kg will be excavated and disposed off-site at an approved facility. The contaminated areas or "hot spots" will be identified by field screening methods and

over-excavated (minimum 2' diameter x 2' depth) and transported off-site for disposal. Post-excavation screening will be performed to verify and lead levels are below the EPA action level. For cost estimating purposes, it was assumed that approximately 25% of the volume contained in the 100' x 100' x 2' deep area will have to be excavated (5,000 cubic feet) and disposed off-site at an approved facility. A clean fill will then be placed in the excavated area and the area will be revegetated.

Removal of the contaminated soil from the Upper Culp Area would greatly reduce the potential for direct contact exposure and significant leaching of the contaminants. During the excavation, perimeter air monitoring will be performed to ensure that nearby residents are not exposed to unhealthful levels of COI.

D. Sediment from the Culp Tributary

Alternative 3 - Excavate and Dispose Off-Site

Estimated Capital Cost: $118,800

Estimated Annual O&M Cost: $0

Estimated Present-Worth Cost: $118,800

Under this alternative, sediments with zinc levels above 270 mg/kg, the National Oceanic Atmospheric Administration Effects Range Median level(NOAA ERM), will be excavated and taken off-site for disposal in an approved facility. Erosion and surface drainage controls will be established for the excavation phase in such a way that wetlands will not be adversely affected. Post-excavation sampling and analysis will be performed to verify that zinc levels in residual sediment are below 270 mg/kg. For cost-estimating purposes it was assumed that a total of 220 cubic yards of sediment will be excavated and disposed off-site. A clean fill shall be placed in the excavation, if necessary, to maintain the existing drainage characteristics of the stream.

By removing the contaminated sediment from the Culp Tributary, the potential for adverse ecological effects will be reduced significantly.

Sediment Alternative 4 - Ex-situ Treatment

Estimated Capital Cost: $69,000

Estimated Annual O&M Cost: $0

Estimated Present-Worth Cost: $69,000

Under this alternative, the affected sediment having zinc levels above 270 mg/kg (NOAA ERM) would be excavated, treated by soil washing and returned to the excavation. For cost estimating purposes, it was assumed that approximately 220 cubic yards of sediment would require treatment. This alternative also includes analytical testing to determine the extent of contamination. The treatment residuals generated will be disposed off-site at an approved facility.

VIII. EVALUATION OF ALTERNATIVES

A detailed analysis was performed on each of the alternatives using the nine evaluation criteria as set forth in the NCP, 40 C.F.R. § 300.430 (e)(9). These nine evaluation criteria can be categorized into three groups: threshold criteria; primary balancing criteria; and modifying criteria. EPA is required to compare and balance these criteria in selecting a remedy. Thus, a summary of each alternative's strengths and weaknesses with respect the nine criteria is detailed below by site media (groundwater and soil/sediment).

A. Groundwater

The selected remedy for groundwater is Groundwater Alternative 3-Groundwater Extraction, Treatment, Discharge with Alternate Water Supply

1. Overall Protection

Groundwater Alternative 3 would provide an alternate water supply from a single community supply well and potentially reduce groundwater contamination to MCLs 10-6 health-based risk levels for the compounds for which MCLs are not established. This alternative would prevent exposure to groundwater contaminants, protect uncontaminated groundwater, and potentially restore contaminated groundwater to the desired cleanup levels. Alternative 1 would not provide any additional reduction in the human health risk associated with household use of contaminated groundwater. Alternative 2 would prevent exposure to

contaminated groundwater for those residences that would be connected to the single community supply well; however, it would not protect uncontaminated groundwater, or restore the contaminated groundwater to the desired levels. Groundwater Alternative 4 would provide approximately the same degree of protection as Alternative 3. Groundwater Alternative 5 would prevent exposure to contaminated groundwater for those residences that have home wellhead treatment units; however, it would not protect uncontaminated groundwater, or restore the contaminated groundwater to the desired levels.

2. Compliance with ARARs

Groundwater Alternative 3 will meet the requirements of the National Contingency Plan (NCP), 40 CFR Part §300.430 (e)(I) (A)(2) and §300.430 (e)(I)(C), by reducing groundwater contamination levels to the Maximum Contaminant Levels (MCLs), set forth in the National Primary Drinking Water Regulations, 40 CFR §§ 141.11-12 and 141.61-62 (NPDWRs), or to 1 x 10-6 health based risk levels for the compounds for which MCLs are not established. Also, discharge of the treated groundwater will be in compliance with the substantive requirements of the 25 PA Code § § 92.31 and 92.41, National Pollution Discharge Elimination System (NPDES) program.

Alternatives 1, 2 and 5 will not achieve MCLs or 10-6 health-based risk levels for the compounds for which MCLs are not established. Groundwater Alternative 4 will satisfy ARARs, as discussed above. Alternative 2 and 5 would satisfy removal action requirements of NCP 40 CFR Part 300.415 (b)(2)(ii) mitigating actual contamination of drinking water supply.

The Commonwealth of Pennsylvania has identified the Land Recycling aad Environmental Remediation Standards Act ("The Act"), 35 P.S. Section 6026.101 et. seq., as an ARAR. EPA has determined the Act is not an ARAR for the purpose of CERCLA Section 121 (d)(2).

3. Long-Term Effectiveness and Permanence

Groundwater Alternative 3 will provide long-term protection of public health by eliminating human exposure to contaminated groundwater. In addition to providing an alternate water supply, this alternative includes measures to potentially reduce contaminants in groundwater to MCLs or 10-6 health-based risk levels for the compound for which MCLs are not established.

Alternative 1 would not reduce the health risks for those households whose wells are contaminated, and would not provide any long-term protection for groundwater users downgradient of the contaminated area. Alterntive 2 and Alternative 5 provide long-term protection of public health, but do not address environmental risks, as the contaminants would continue to migrate in groundwater. Groundwater Alternative 4 would provide approximately the same degree of long-term protection as Alternative 3. Alternative 5 would not prevent the withdrawal of groundwater from the contaminated plume and could therefore interfere with the cleanup of the contaminated aquifer.

4. Reduction of Toxicity, Mobility, or Volume Through Treatment

Groundwater Alternative 3 will provide an irreversible treatment process (including air stripping with vapor-phase carbon adsorption) which will effectively (99+ percent) remove VOCs from the extracted water. Off-site treatment of the spent carbon will irreversibly destroy the contaminants removed in the stripping and adsorption process. Mobility of the contaminants will be greatly reduced as a result of the hydraulic flow barriers. This alternative will also reduce the volume and concentration of contaminated groundwater.

Groundwater Alternative 4 would similarly reduce the mobility, and volume of the groundwater contaminants. Alternatives 1 and 2 would not reduce the toxicity, mobility, or volume of contaminants in the groundwater. Groundwater Alternative would reduce the toxicity of potable water to the currently affected residences, but would not effectively reduce mobility or volume of contaminated groundwater.

5. Short-term Effectiveness

During the implementation of Groundwater Alternatives 3 and 4, treatment system operators and the neighboring community will be protected from fugitive emissions associated with the air-stripping process, as the remedy includes off-gas carbon adsorption treatment. Initial perimeter air monitoring and work area breathing zone monitoring may be required to verify the effectiveness of the off-gas treatment system. During the remediation, special procedures including wearing of appropriate protective clothing will have to be adhered to by the treatment system operators for the handling of carbon waste. Alternative would likely have a shorter remediation period than Alternative 3 since the reinjected water would flush contaminants from the groundwater at a higher flow rate. However, the time frames cannot
be estimated with any degree of accuracy at this time.

In Alternatives 2 and 5, the protection of workers and the community from exposure to Site contaminants

during the remedial action is not a major consideration since the only proposed action is the installation of fencing, monitoring wells and the construction of a community water supply system.

6. Implementability

Alternatives 1, 2 and 5 are readily implementable, although Alternative would require the approval of the state and local governments for the construction of single community supply system that includes a supply line within the existing road right-of-way. Because Alternatives 3 and 4 involve the extraction and treatment of groundwater, they would pose a greater challenge in their implementation and operation than Alternatives 1, 2 and 5. The treatment process for Alternatives 3 and 4 are, however, well demonstrated and readily implementable. Operation and maintenance of the groundwater extraction and treatment system will be performed on a scheduled basis. Also, monitoring of the effluent quality and emissions rate would be required to ensure regulatory compliance and reliability of the system.

Because of the fractured bedrock conditions underlying the Site, Alternative 3 will be easier to implement than Alternative 4. These physical site conditions make the containment and control of reinjected water more difficult to design, as it would be necessary to understand and control the spread of reinjected treated water to ensure that contaminants do not migrate to unaffected areas.

For Alternatives 3 and 4, the substantive requirements of an air permit from PADEP would be required for the operation of the air-stripper and off-gas treatment system. For Alternatives 3 and 4, the substantive requirements of a NPDES permit would also be required for the discharge of treated groundwater to the Western Tributary and/or Rock Creek or for other nonpotable uses. For Alternative 4, a state Water Quality Management Permit would be required if the reinjection is performed off-site.

7. Cost

The total estimated present-worth cost of the selected alternative (Groundwater Alternative 3) is $3,404,060.

Alternative 4 has the highest estimated present-worth cost at $4,007,960 and Alternative 1 the lowerst, with an estimated present-worth cost of $0.

8. State Acceptance

Commonwealth of Pennsylvania has withheld concurrence with the ROD, although they agree with the selected groundwater remedy for the Shriver's Corner Site as described in the Proposed Plan.

9. Community Acceptance

In general the community has accepted the selected groundwater remedy for the Shriver's Corner Site. The Responsiveness Summary, attached, provides a thorough review of questions and comments received during the Public Comment Period including EPA's.

B. Soil and Sediment

The selected remedy for soil and sediment is Soil Alternative 3-Excavate and Dispose Off-Site and Sediment Alternative 3-Excavate and Dispose Off-Site, respectively.

1. Overall Protection

a. Soil

Implementation of Soil Alternative 3 for the Shealer Area and Upper Culp Area will result in the removal of highly contaminated soil, which will significantly reduce exposure risks and potential impact to groundwater. Soil Alternative 1, the no action alternative, would not prevent exposure to the contaminated soil. The Shealer Area Soil Alternatives 4 and 5 would provide the same (as Alternative 3) degree of long-term protection but with an increased risk of short-term exposure to Site workers and residences as a result of VOCs liberated by the heat-generating stabilization process. Soil Alternative 6 is considered adequately protective of human health and the environment, as it combines institutional controls with a cap system to minimize impact to groundwater.

b. Sediment

Sediment Alternatives 3 and 4 both involve the excavation and removal of contaminated sediment to reduce zinc levels to 270 mg/kg (NOAA ER-M), which is significantly less than the EPA Region III human health risk-based levels of 23,000 mg/kg (residential) and 610,000 mg/kg (industrial). Therefore, both alternatives are considered equally protective of human health and the environment.

2. Compliance with ARARs

a. Soil

The Shealer Area Soil Alternative 6, a low-permeability cap, would meet the substantive requirements of 25 PA Code § 264.310 (Closure, post closure care) and Section 264.302(a)(6) (related to cap permeability). Alternatives 4 and 5 involving stabilization would meet the appropriate and relevant substantive requirements of 25 PA Code Sections 264.271- 282 (land treatment).

b. Sediment

The alternatives 3 and 4 would also meet the Clean Water Act Dredge and Fill substantive requirements 33 CFR Section 323.3 (Discharge of fill material). These regulations regulate the discharge of dredged or fill material to the waters of U.S. The cleanup activities must minimize adverse impacts and/or mitigate such impacts.

3. Long-term Effectiveness and Permanence

a. Soil

Soil Alternative 3 will provide long-term protection to human health and the environment by permanently removing contaminated soil from the Shealer Area and Upper Culp Area. Soil Alternatives 4 and 5 for the Shealer Area would provide long-term protection by stabilizing the contaminated soil, which inhibits mobility and thereby reduces the exposure threat and impact to groundwater. Soil Alternative 6 for the Shealer Area would provide long-term protection of public health against contact exposure by providing a physical barrier. This barrier, a low permeability cap, would also significantly reduce the likelihood of contaminants leaching to the groundwater.

b. Sediment

Sediment Alternative 3 will provide long-term environmental protection by permanently contaminated sediment from the Culp Tributary. Sediment Alternative 4 would also provide long-term protection by excavating the contaminated sediment, treating it via soil washing and returning the treated sediment to the Culp Tributary.

4. Reduction of Toxicity, Mobility, or Volume

a. Soil

1. Shealer Area

Alternative 2, institutional controls, would not reduce the toxicity, mobility, or volume of contaminated soil. Soil Alternative 3 would significantly reduce the volume of contaminated soil at the Site. Alternative 3 would also reduce the effective toxicity of contaminants at the Site via permanent removal of contaminants from the Site. The construction of a low-permeability cap, Soil Alternative 6, would not reduce the toxicity or volume of contaminants, however, it would reduce the mobility of contaminants by reducing infiltration. Both Shealer Area Soil Alternatives 4 and 5 have attributes that successfully address reduction of mobility, toxicity, or volume of contaminants in the affected soil and are therefore considered to be equal to Alternative 3. However, Alternatives 4 and 5 would result in an increase of treated soil volume.

2. Upper Culp Area

The evaluation for the Shealer Area Soil Alternatives 2 & 3 listed above also applies to the Upper Culp Area soil.

b. Sediment

Both Sediment Alternatives 3 and 4 would reduce the mobility and/or volume of contaminants in Culp Tributary sediment.

5. Short-term Effectiveness

a. Soil

Shealer Area Soil Alternative 6, construction of a cap system, would not involve handling of the affected soil and therefore, would not pose significant risk to site workers. The Shealer Area Soil Alternative 4, in-situ stabilization, would present slightly greater risk of contaminants exposure to workers during

remediation. Both Shealer Area Soil Alternatives 3 and 5 involve excavation of contaminated soil, which presents the highest risk of contaminant exposure to workers; however, risk to the workers can be reduced by implementing standard protective measures. The Shealer Area Soil Alternative 3, 4 and 5 all have the potential for providing exposure to the nearby residents. Therefore, real-time perimeter air monitoring is required to provide information on the degree of exposure which can be used to control fugitive emissions as needed. The same measures can be implemented for the Upper Culp Soil Alternative 3, which is similar to the Shealer Area Alternative 3.

b. Sediment

After implementation, both Alternatives 3 and 4 would effectively achieve the remedial action objectives in the short-term. If significant dredging of the impacted sediment under either alternative is necessary, it would pose an exposure risk to the workers which can be controlled by adhering to proper safety practices such as providing protective clothing and equipment and/or performing vacuum dredging to prevent fugitive emissions. Vacuum dredging would also minimize damage to the wetland.

6. Implementability

a. Soil

Under Alternative 2, a fence would be constructed around the Shealer Area, Upper Culp Area, and portions of the Culp Junkyard Area in about six months. Implementation of the cover system in Soil Alternative 6 is readily achievable and would take about one year. Soil Alternatives 3, 4 and 5 are considered readily implementable and, like Alternatives 6, would require about one year to complete. Off-site disposal under Alternative 3 for the Upper Culp Area could also be accomplished within one year.

b. Sediment

Sediment Alternative 4, Ex-situ Treatment, could be readily implementable with a specialized vendor and a laboratory for treatability testing. The time required to implement Alternative 4 is about one year. However, Sediment Alternative 3 (excavation and of off-site disposal) will be much easier to implement given the relatively small volume of affected sediment. A few months would be ample time to excavate and dispose of contaminated sediment. This work could also be performed in the same time frame as Alternatives 3 for soil.

7. Cost

a. Soil

1. Shealer Area

The present-worth costs for the Shealer Area soil alternatives are: low-permeability cap system (Alternative 6) - $556,700; in-situ stabilization (Alternative 4) - $1,558,400; ex-situ treatment via soil washing (Alternative 5) -$2,266,400; and excavation with off-site treatment/disposal (Alternative 3) - $834,470.

2. Upper Culp Area

The present-worth cost for Alternative 3 is $93,641.

b. Sediment

Assuming that ex-situ treatment is being performed for the Shealer Area surface soil, the present-worth cost for Sediment Alternative 4, Ex-situ Treatment is $69,000. The present-worth cost for Sediment Alternative 3, dredging and off-site disposal of the affected sediment, is $118,800.

Note: The Culp Tributary Sediment Alternative 4 would only be viable if the Shealer Area Soil Alternative 5 is chosen as the selected remedy. This is due to the fact that both alternative involve Ex-Situ Soil treatment which would require the same process equipment and logistics. The costs of the remedies are based on using the same equipment to achieve the goals of the remedies.

8. State Acceptance

The Commonwealth of Pennsylvania has concurred with the Proposed Plan selected soil and sediment remedy for the Shriver's Corner Site.

9. Community Acceptance

In general, the community has accepted the selected soil and sediment remedy for the Shriver's Corner Site. The Responsiveness Summary, attached, provides thorough review of questions and comments received during the Public Comment Period including EPA's responses.

IX. SELECTED REMEDY

A. General Description of Selected Remedy

1. Groundwater

The selected remedy for groundwater is Groundwater Alternative 3 which includes several measures including a groundwater extraction and treatment system, institutional controls, chain-link fences, and a community supply well.

The key components of the groundwater remediation system consist of extracting contaminated groundwater via extraction wells and intercepting trenches, and treating it on-site with an air stripper with vapor-phase carbon adsorption. The objective of this remedy is to reduce the contaminants in groundwater to MCLs or 10-6 health-based risk levels for the compounds for which MCLs are not established. The treated groundwater would then be discharged to the Western Tributary and/or Rock Creek, or for use as a nonpotable water supply. The discharge must comply with the substantive requirements of a Pennsylvania NPDES discharge permit under 25 PA Code Sections 92.31 and 92.41.

The institutional controls would include deed restrictions and a groundwater monitoring program. Deed restrictions would be placed on the affected areas owned by PRPs to minimize the impact to groundwater flow or wastes remaining on-site. Quarterly groundwater monitoring will help to determine the effectiveness of the cleanup, and whether additional remedial measures are warranted in the future.

A chain-link fence will be constructed around the perimeter of the affected areas to control site access. By contructing a single community supply well upgradient of the groundwater contamination plume, the currently affected residences (five) would not have to rely on their contaminated domestic wells for potable water. This action would therefore mitigate the health threat from potable use of contaminated groundwater.

2. Soil

The selected remedy for soil is Soil Alternative 3 which addresses the lead-contaminated surface soil at both the Shealer Area and Upper Culp Area. In the Shealer Area, the contaminated soil with lead levels that exceed the EPA action level of 40 mg/kg would be excavated and transported off-site for treatment and/or disposal. Similarly, a the Upper Culp

Area, soil that appears visually stained will be screened and all lead-contaminated soil in exceedance of the EPA action level of 400 mg/kg will be excavated and transported off-site to an approved facility.

In both areas, post-excavation sampling and analysis would be used for verification that residual lead concentrations do not exceed 400 mg/kg. The excavation would then be backfill with clean soil and revegetated. Erosion and surface drainage controls would be constructed and maintained during the remedial efforts. Also, perimeter air monitoring will be performed during excavation to monitor and control the remedial effort. Removal of contaminated soil from both the Shealer Area and Upper Culp Area would greatly reduce the potential for a direct contact threat and for leaching of contaminants to subsurface soil and groundwater.

3. Sediment

The selected remedy for sediment is Sediment Alternative 3 which addresses the contaminated sediment in the Culp Tributary. The affected sediment with zinc levels above 270 mg/kg, the National Oceanic Atmospheric Administration Effects Range Median (NOAA ERM) level, would be excavated and transported off-site for disposal at an approved facility. Erosion and surface drainage controls would be constructed during the excavation phase to minimize impact to the wetlands. Post-excavation sampling and analysis would be performed to verify that zinc levels are below 270 mg/kg. If necessary, a clean fill would be applied to the excavated area to maintain existing drainage characteristics of the Culp Tributary. The removal of contaminated sediment from the Culp Tributary will reduce the potential for adverse ecological effects.

B. Contingency Strategy if Remedy is Not Achieved

Based on the information obtained during the RI and the analysis of the remedial alternatives, EPA and the Commonwealth of Pennsylvania believe that it may be possible to achieve the remedial action objectives for groundwater. However, groundwater contamination may be especially persistent in the immediate vicinity of

the contaminants' source, where concentrations are relatively high and residual DNAPLs are likely present. The ability to achieve cleanup requirements throughout the area of attainment (plume) cannot be determined until the extraction system has been operating, modified as necessary, and the effectiveness of the remedy monitored over an extended period of time.

If it is determined by EPA, in consultation with PADEP, on the basis of system performance data, that certain portions of the aquifer cannot be restored to MCLs or 10-6 health-based risk levels for the compounds for which MCLs are not established, and/or if it is technically impracticable to restore the aquifer, EPA will consider amending the ROD or issuing an Explanation of Significant Differences to reflect this determination. The design of the selected groundwater alternative (alternative 3) will be such that if the goals change from restoration to containment, no significant changes to the system will be required. In Such a event, the selected groundwater alternative (Alternative 3) also provides contingency options and objectives that will be protective of human health and the environment and are technically practicable. The contingency options include one or more of the following measures:

[] Waiving chemical-specific ARARs for the cleanup of those portions of the aquifer where it is technically not practicable to achieve further contaminant reduction.

Providing engineering controls such as long-term gradient control and containment by pumping at low flow rates.

EPA in consultation with the PADEP would select the specific contingency(ies) options to be implemented, if necessary.

C. Performance Standards/Cleanup Criteria

For each component of the selected remedy, performance standards are given to define the level of accomplishment. The performance standards include ARARs, as well as other criteria detailed herein, to ensure that the selected remedy achieves the remedial action objectives for the Site.

1. Groundwater

To reduce the risk to human health and the environment associated with exposure to contaminated groundwater from the Site, the selected groundwater remedy as described in Section IX, Description of Selected Remedy, shall be implemented in accordance with ARARs listed in Section X, Statutory Determinations, and the performance standards detailed in this section.

a. Deed Restrictions

Land use restrictions shall be incorporated into the deeds for the Shealer Area, the Estate of Thomas Shealer and the Culp Area to limit future land-use of impacted groundwater and soil in the designated areas of the properties where groundwater contaminant concentrations exceed the action levels. The deed restrictions shall also be placed to minimize impact to the groundwater and to minimize any interferences to the cleanup. The restrictions shall remain in effect until the cleanup criteria defined in this section are achieved throughout the Site.

b. Chain-Link Fence

Access to the designated areas of the Site shall be restricted by the construction of an eight-foot high chain-link fence along the perimeter of the Shealer Area, and the remaining three sides of the Upper Culp Area and Culp Junkyard Area. The fence shall be maintained to restrict site access until the cleanup criteria have been met. Signs shall be posted and maintained every 250 linear feet along the fence-line (minimum one sign per side) to warn trespassers and others in the area of the contamination and dangers associated with the Site.

c. Community Supply Well

A community water supply system shall be designed, constructed, operated and maintained in compliance with PADEP and local requirements if any. The water quality objectives for the community water supply would be specified in the design and those objectives at minimum would be required to meet the MCLs in the supply water. A single community supply well shall be installed upgradient of the groundwater contamination plume in the deep unaffected aquifer. A treatment and distribution system shall be constructed as required to provide sufficient potable water for as many as 14 residential connections or serving up to 24

d. Groundwater Cleanup Criteria

The groundwater remediation system shall be operated and maintained until all impacted groundwater is

restored to MCLs or 10-6 health-based risk levels for the compounds for which MCLs are not established. The sampling and analytical methods used to evaluate system performance must be approved by EPA in consultation with PADEP.

e. Groundwater Extraction System

A groundwater extraction system shall be designed and constructed to effectively remediate both the Shealer Area and Upper Culp Area (Figure 5) groundwater. Multiple extraction wells and horizontal collection trench(es) shall be installed to create a capture zone that will fully contain and remediate the impacted groundwater. The specific details of the extraction system including the number and exact location of extraction wells and collection trenches and pumping rates shall be determined during the Remedial Design and shall be approved by EPA in consultation with PADEP.

f. Air Stripper

The groundwater collected by the extraction system shall be treated using an air stripper. Air and water flow rates as well as other design specifications shall be determined during the Remedial Design and shall be approved by EPA in consultation with PADEP prior to implementation.

g. Off-Gas Treatment

As the contaminants are transferred in the stripping unit from the aqueous-phase to the vapor-phase, off-gas treatment consisting of carbon adsorption shall be required to satisfy ARARs listed in Section XB, Compliance with Applicable or Relvent and Appropriate Requirements (ARARs). The spent carbon shall be shipped off-site for treatment at an approved RCRA facility.

h. Effluent Discharge

The treated water from the stripping unit shall be discharged into the Western Tributary, and/or Rock Creek or used as a nonpotable supply. The exact point of discharge or use and related design criteria shall be determined during the Remedial Design and shall be approved by EPA in consultation with PADEP prior to implementation. The treated effluent discharge shall comply with the substantive requirements of an NPDES permit.

i. Quality Control Monitoring

Quality control monitoring shall be performed to evaluate the effectiveness of the groundwater extraction and treatment system. The frequency and nature of quality control monitoring shall be determined during the Remedial Design and shall be approved by EPA in consultation with PADEP prior to implementation.

j. Area of Attainment

The area of attainment for the groundwater remediation is defined as the extent of groundwater which exceeds MCLs or 10-6 health-based risk levels for the compounds for which MCLs are not established.

k. Monitoring of Cleanup

A system of monitoring wells shall be designed and installed to monitor the cleanup progress throughout the area of attainment (plume). The number and location of these monitoring wells shall be approved by EPA in consultation with PADEP. The wells shall be sampled quarterly for the first two years, semiannually for the next two years, and annually thereafter until the levels of contaminants of concern in these wells have reached the cleanup criteria. Once the cleanup criteria are reached throughout the plume, these wells shall be sampled for twelve consecutive quarters and if contaminant levels remain below the cleanup criteria, the operation of the extraction system shall be discontinued. Semiannual monitoring of the groundwater shall continue for a minimum of five years. If subsequent to the extraction system shutdown, monitoring shows the groundwater concentrations of any contaminant of concern to exceed the cleanup criteria, the system shall be restarted and continued until acceptable contaminant levels throughout the plume have been reattained for twelve consecutive quarters. Annual monitoring shall continue until EPA determines, in consultation with PADEP, that contaminants have stabilized below the cleanup criteria.

1. Five Year Review

DNAPLs may remain on-site as a source of future groundwater contamination, Five Year Reviews shall be conducted after the remedy is implemented to assure that the remedy continues to protect human health and the environment. A Five-Year Review work plan shall to drafted after the remedy is implemented and shall be approved by EPA in consultation with PADEP prior to implementation.

2. Soil and Sediment

To reduce the risk to human health and the environment, contaminated soil and sediment shall be remediated as described in Section IX, Description of Selected Remedy. All components of the selected remedy, Soil Alternative 3 and Sediment Alternative 3, shall be implemented in accordance with the performance standards detailed herein and ARARs listed in Section X, Statutory Determinations.

a. Cleanup Criteria

All contaminated soil at the Site shall be remediated to the lead cleanup criterion of 400 mg/kg and all contaminated sediment shall be remediated to the zinc cleanup criterion of 270 mg/kg. The sampling and analytical methods used to evaluate performance shall be approved by EPA in consultation with PADEP prior to implementation.

b. Erosion Control

Prior to commencement of excavation or soil disturbance work, an erosion and sedimentation control plan shall be developed and implemented to address control measures for all activities that potentially transport soil or sediment. The plan shall be developed in accordance with PADEP and local regulations and shall be approved by EPA in consultation with PADEP prior to implementation.

c. Excavation of Soil and Sediment

During excavation of contaminated soil and sediment, confirmatory sampling shall be conducted in a representative manner to ensure that all cleanup criteria have been met. The protocol for sampling and analysis shall be developed and must be approved by EPA in consultation with PADEP prior to implementation.

d. Wetlands

A detailed excavation plan shall be developed for work in the wetlands. The plan shall also describe the restoration efforts that will be performed to ensure that wetlands are not adversely impacted by the cleanup. This plan shall be submitted for approval by EPA in consultation with PADEP prior to implementation.

e. Storm Water Controls

A storm water control plan shall be developed to address runoff from all areas of soil disturbance associated with Site remediation activities. The plan shall be submitted for approval by EPA in consultation with PADEP prior to implementation.

f. Backfilling and Restoration of Excavated Areas

The excavated areas, with the possible exception of wetland areas, shall be backfilled with a clean fill and compacted in 6-inch lifts to the original grade. A minimum 4-inch layer of topsoil should be applied, a vegetative cover established and complete restoration performed over the affected area.

g. Air Monitoring and Fugitive Emissions Control

An air monitoring and fugitive emissions control plan shall be developed and submitted for approval by EPA in consultation with PADEP prior to initiating cleanup activities.

X. STATUTORY DETERMINATIONS

EPA's primary responsibility at Superfund sites is to undertake remedial actions that are protective of human health and the environment. In addition, § 121 (b) of CERCLA, 42 U.S.C. § 9621, establishes several other statutory requirements and preferences. These requirements specify that upon completion, the selected remedial action for each site must comply with applicable or relevant and appropriate ("ARARs") environmental standards established under federal and state environmental laws unless a statutory Waiver is invoked. The selected remedy also must be cost effective and must utilize treatment technologies to the maximum extent practicably. Finally, the statute includes a preference for remedies that permanently and significantly reduces the volume, toxicity or mobility of hazardous substances. The following sections discuss how the selected remedy for this Site meets these statutory requirements.

A. Protection of Human Health and the Environment

1. Groundwater

The selected remedy for groundwater protects human health and the environment by

controlling exposure to contaminated groundwater associated with the Site. By providing a community water supply system to the affected residences, local residents will not be dependent on their contaminated domestic wells for potable water. The remedy also requires the extraction and treatment of contaminated groundwater to MCLs or 10-6 health-based risk levels for the compounds for which MCLs are not established. The treated groundwater would be discharged to the Western Tributary, and/or Rock Creek or used as a nonpotable supply under the requirements of the NPDES program. Air emissions from the treatment of groundwater will be treated and monitored in accordance with the provisions of Pennsylvania Air Quality Control Regulations (25 PA Code Sections 129.56, 129.57, 129.91) which govern fugitive emissions from remedial actions that include air stripping activity. Implementation of this remedy will not pose unacceptable short-term risks or cross-media impact.

Institutional controls, which include a groundwater monitoring program and deed restrictions, will further prevent the potential for future exposure to contaminated groundwater.

2. Soil/Sediment

The selected remedy for soil and sediment is protective of human health and the environment and eliminates the potential for a direct contact with contaminants by remediating the contaminated soil and sediment to health-based levels. The remediation will also ensure that the soil and sediment contamination does not serve as a continuing source of contamination to groundwater, surface water, and subsurface soils.

Perimeter air monitoring will be performed during the excavation phase to monitor air emissions and provide data for control measures. Appropriate protective gear will be worn by site workers to protect against exposure during the remediation effort. With the addition of monitoring and institutional controls, this remedy for soil and sediment is protective of human health and the environment.

B. Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

1. Groundwater

The selected remedy will supply the affected residences with an alternate water supply and attempt to restore the groundwater to MCLs or 10-6 health-based risk levels for which MCLs are not established. This remedy shall comply with ARARs detailed in this section.

The chemical-specific ARARs that apply to the selected groundwater remedy include:

[] 25 PA Code Sections 129.56, 129.57 and 129.91 govern fugitive emissions from remedial actions that include air stripping activity. These regulations are applicable to the air stripping activity of the pump and treat system.

The action-specific ARARs that apply to the selected groundwater remedy include:

[] For the Shriver's Corner Site, several of the compounds found in groundwater are derived from the listed wastes, as defined in 25 PA Code Chapter 261. The selected remedy shall comply with the applicable requirements of 25 PA Code Sections 264.171-.179 (Subchapter I, dealing with use and management of containers), and 25 PA Code Sections 264.190, 264.192-.199 (Subchapter J, dealing with storage tanks), and/or 40 CFR Part 264, Subparts I and/or J, to the extent that the Commonwealth of Pennsylvania has not received authorization for requirements of such provisions.

25 PA Code Sections 92.31 and 92.41 (NPDES program) which govern monitoring requirements for point-source discharges to Pennsylvania waters are applicable to the selected groundwater alternative, which involves discharge of treated groundwater to surface water.

25 PA Code Sections 93.1-93.9 which govern air stripper water discharge levels are applicable to the selected remedy.

25 PA Code Sections 102.4(a) and 102.11-102.13 govern erosion control

from earthmoving and excavation activities are applicable to the selected remedy.

2. Soil/Sediment

The selected remedy includes the excavation and off-site treatment and/or disposal of contaminated (in exceedance of specified action levels for this Site) Soil and sediment. This remedy will comply with ARARs detailed in this section.

The location-specific ARARs and TBCs that apply to the selected soil/sediment remedy include:

The Clean Water Act Dredge and Fill sustantive requirements specifically found in 33 CFR Section 323.3 (Discharge of fill material) are applicable. These regulations regulate the discharge of dredged or fill material to the waters of U.S. The cleanup activities must minimize adverse impacts and/or mitigate such impacts.

The action-specific ARARs that apply to the selected soil/sediment remedy include:

Pennsylvania Soil and Water Conservation Regulations specifically found in 25 PA Code Sections 102.4(a), 102.11-102.13 govern erosion control from earthmoving and excavation activities. These regulations are applicable.

The chemical-specific ARARs that apply to the selected soil/sediment remedy include:

None.

C. Cost-Effectiveness

The NCP requires EPA to evaluate cost-effectiveness by first determining if the alternative satisfies the threshold criteria: protection of human health and the environment and compliance with ARARs.

The selected remedy is considered cost-effective because the total costs are proportional to its overall effectiveness. The estimated present-worth cost for the selected remedy is $4,517,325. While the use of Alternatives 1, 2 or 5 for the groundwater component of the selected would be less costly to implement than the selected remedy (Alternative 3), they are also much less protective of human health and the environment do not satisfy ARARs in some cases. The use of groundwater Alternative 4 in the selected alterative would potentially remediate groundwater contamination in less time, however, would be more costly and difficult to implement than selected remedy (Alternative 3). The implementation of soil Alternative 6 for the Shealer Area has potential to be less costly than the Selected Remedy, by $255,460, however would allow the contamination to remain on the Site and would therefore, be less protective of human health and the environment. In addition it would have the higher maintenance cost beyond 30 years which was not included in the deriving the cost for the soil Alternative 6 for the Shealer Area.

D. Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

EPA has determined that the selected remedy represents the maximum extent to which permanent solutions and treatment technologies can be utilized while providing the best balance among the other evaluation criteria. Of the alternatives that are protective of human health and the environment and meet ARARs, EPA has determined that the selected remedy provides the best balance in terms of long-term effectiveness and permanence, reduction of toxicity, mobility, or volume through treatment, short-term effectiveness implementability, cost, state and community acceptance.

The selected remedy addresses threats posed by the contamination at the Site. The remedy is protective of human health and the environment, meets ARARs, incorporates rates treatment as a principal element, and is cost-effective. Removal of DNAPLs represents a permanent solution in eliminating a potential continuing source of groundwater contamination. EPA in consultation with PADEP, will determine the practicability of restoring the contaminated groundwater to MCLs or 10-6 health-based risk levels for compounds fo which MCLs are not established, and whether implementation of the contingency options is necessary to achieve this objective.

The selected remedy would provide long-term protection of public health from exposure to contaminated groundwater by providing a community water supply an, by removing the contaminants in groundwater to MCLs or health-based risk levels for the compound for which MCLs are not established. This alternative would also prevent significant contaminant migration by establishing a hydraulic barrier. This alternative would also reduce the toxicity and volume of contaminated groundwater.

E. Preference for Treatment as a Principal Element

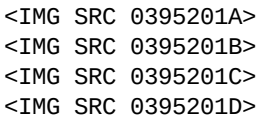
The treatment of extracted groundwater is a principal component of the selected groundwater remedy. The selected remedy includes off-site treatment and/or disposal of contaminated soil and sediment at an approved facility as appropriate. This remedy, therefore, satisfies the CERCLA preference for considering treatment as a principal component.

XI. DOCUMENTATION OF SIGNIFICANT CHANGES

Proposal Plan for the Shriver's Corner Site was released for public comment in June 1995 and the Public Comment Period for this Site expired on August 21, 1995. The Proposed Plan identified Groundwater Alternative 3, Soil Alternative 3, and Sediment Alternative 3 as the preferred alternatives. EPA has reviewed all written and verbal comments submitted and upon review of these comments, it was determined that no significant changes to the selected remedy, as originally described in the Proposed Plan, were necessary.

APPENDIX A

FIGURES



APPENDIX B

TABLES

TABLE 1
Stained Soil Sampling (June 28, 1991)
Upper Culp Area

Sampling Station	Total Organic (ppb)		TCLP Inorganic (ppm)	
	Compound	Levels	Compound	Levels
SC-01-SS-01	NA	ND	Chromim	0.2
			Lead	0.3
SC-02-SS-01	NA	ND	Chromium	0.2
			Lead	0.2
SC-03-SS-01	TCE	310	Chromium	4.2
	Naphthalene	840	Lead	4.2
	Fluoranthene	67		
	Pyrene	96		
SC-04-SS-01	TCE	460	Lead	1.7
	PCE	13		
	Toluene	18		
SC-05-SS-01	1,1,1-TCA	69	Chromium	8.4
	TCE	600	Lead	4.5
SC-06-SS-01	PCE	63	Cadmium	0.3
	Toluene	47	Chromium	54.2
	Total Xylene	26	Lead	1.6

TABLE 2
Soil Sampling (August 25, 1993)
UpperCulp Area

Sampling Station	Concentration (see foot note 1)		
	Cadmium (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)
SC-07-SS-01	<5.0	142	<50.0
SC-07-SS-02	<5.0	146	<50.0
SC-08-SS-01	7.4	30,400	739
SC-09-BG-01	<5.0	33.2	35.9
SC-10-SS-01	4.7	947	1,930
SC-11-SS-01	70.0	7,650	453
SC-12-SS-01	22.0	1,120	913
SC-13-SS-01	2.4	239	119
SC-14-SS-01	2.8	3,260	4,780
SC-15-SS-01	4.4	1,620	524
SC-15-SS-01	4.5	1,580	560
SC-01-FB-01 1	<5 ug/l	<10 ug/l	<3 ug/l
SC-01-RB-01 1	<5 ug/l	<10 ug/l	<3 ug/l
SC-02-RB-02 1	<5 ug/l	<10 ug/l	<3 ug/l

1 Units are in ug/l for this blank rinstate

TABLE 3

FUTURE ON-SITE RESIDENTS HEALTH RISK

Area	Medium	Risk/Haz Index	Adults	Developing Indivisual	Young Children
Upper Culp Area	Soil	Cancer Risk	1.5 x 10-8	2.9 x 10-8	1.1 x 10-8
		Haz Index	0.01	0.02	0.06
	Groundwater	Cancer Risk	2.7 x 10-2	4.6 x 10-2	1.5 x 10-2
		Haz Index	22.91	41.95	94.41
Lower Culp Area	Soil	Cancer Risk	1.1 x 10-6	2.2 x 10-6	8.4 x 10-7
		Haz Index	0.03	0.08	0.25
	Groundwater	Cancer Risk	N/A	N/A	N/A
		Haz Index	N/A	N/A	N/A
Culp Junkyard	Soil	Cancer Risk	3.4 x 10-6	1.6 x 10-5	8.8 x 10-6
		Haz Index	0.13	0.22	0.71
	Groundwater	Cancer Risk	N/A	N/A	N/A
		Haz Index	0.48	0.82	1.62
Shealer Area	Soil	Cancer Risk	8.3x10-6	1.6x10-5	6.2 x 10-6
		Haz Indes	0.16	0.43	1.41
	Groundwater	Cancer Risk	5.4 x 10-2	9.1 x 10-2	3.1 x 10-2
		Haz Index	36.59	63.72	126.52

TABLE 4

CURRENT RESIDENTS HEALTH RISK1

Area	Medium	Risk/Haz Index	NearSite Residents			Onsite
			Adults	Developing Indivisual	Young Children	Visiting Children
Upper Culp Area	Soil	Cancer Risk	N/A	N/A	N/A	3.4 x 10-9
		Haz Index	N/A	N/A	N/A	0.01
	Groundwater	Cancer Risk	N/A	N/A	N/A	N/A
		Has Index	22.91	41.95	94.41	N/A
Lower Culp Area	Soil	Cancer Risk	N/A	N/A	N/A	2.5 x 10-7
		Haz Index	N/A	N/A	N/A	0.03
	Groundwater	Cancer Risk	N/A	N/A	N/A	N/A
		Haz Index	N/A	N/A	N/A	N/A
Culp Junkyard	Soil	Cancer Risk	N/A	N/A	N/A	1.1 x 10-5
		Haz Index	N/A	N/A	N/A	0.05
	Groundwater	Cancer Risk	N/A	N/A	N/A	N/A
		Has Index	N/A	N/A	N/A	N/A
Shealer Area	Soil	Cancer Risk	N/A	N/A	N/A	1.9 x 10-6
		Haz Index	N/A	N/A	N/A	0.011
	Groundwater	Cancer Risk	1.8 x 10-5	3.1 x 10-5	1.0 x 10-5	N/A
		Haz Index	36.59	63.72	126.52	N/A

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1 The calculated future risk for the nearsite residents for other than Shealer area is not applicable.

Shriver's Corner Site
Straban Township, Adams County, Pennsylvania

RESPONSIVENESS SUMMARY

The Responsiveness Summary documents public concerns and comments expressed during the public comment period. The summary also provides EPA's response to those comments. The information is organized as follows:

I. Overview

II. Background on Community Involvement

III. Summary of Questions/Comments and EPA's Responses

(1) The Public Meeting

(2) Part I-Summary and Response to Local Community Concerns

(3) Part II- Response to Potentially Responsible Parties (RRP's) Technical Questions

I. Overview

A public comment period was held from June 20, 1995 through July 20, 1995 to receive questions and comments from the public on the Remedial Investigation/Feasibility Study (RI/FS) Reports, the Proposed Remedial Action Plan (PRAP), and EPA s preferred alternatives for the Shriver's Corner Site. At the request of Westinghouse Electric Corporation (Westinghouse), a potentially responsible party (PRP), and local citizens, EPA agreed to extend the public comment period to August 21, 1995.

To facilitate community involvement, EPA held a public meeting on July 13, 1995, at Spangler's Restaurant, 25 Sandee Road in Gettysburg, PA. At the meeting, EPA discussed the RI/FS Reports including the Risk Assessment (RA) Report which were developed for the Site. EPA also presented the PRAP for eliminating and/or mitigating the public health and environmental threats posed by the groundwater, soil and sediment contamination found at the Site.

At the public meeting, EPA explained that the preferred alternatives include measures to remedy contamination in Site groundwater, soil and sediment. The preferred alternative for groundwater consists of an alternate community water supply for the affected residences and remediation of contaminated groundwater via extraction and treatment with an air stripping unit. The preferred alternative for soil and sediment consists of excavation with off-site treatment and/or disposal.

The public meeting also provided the opportunity for the public to raise questions and express opinions and concerns. The comments and questions received during the public meeting, along with EPA responses, are summarized in Section III of this document.

II. Background on Community Involvement

Comminity involvement at the Site has been relatively moderate throughout the Superfund process, as public officials and local residents remain interested in Site activities. Community interest has focused primarily on issues of groundwater contamination and EPA's preferred remedy for groundwater. EPA has initiated several community involvement activities to solicit public input on remedial activities at the Site. The activities performed include:

- Development of a mailing list which includes the addresses of residents who live within a 0.5 mile radius of the Site.
- Distribution of fact sheets to local residents and officials on April 5, 1995 and July 3, 1995; these fact sheets summarized the findings of the RI/FS and presented an outline of the PRAP, respectively.
- Conducting community interviews on April 10 and 11, 1995 to discuss remedial activities at the Site.
- Scheduling a public comment period from June 20 - July 20, 1995 for the Proposed Remedial Action Plan.
- Hosting a public meeting on the Proposed Remedial Action Plan on July 13, 1995.

The public comment period and notice of availability of the PRAP and related documents was advertised in the Gettysburg Times on June 20, 1995. In addition, EPA prepared a notice of the extension of the public comment period to August 21, 1995. The notice was published in the July 22, 1995 edition of the Gettysburg Times.

III. Summary of Questions/Comments and EPA's Responses

(1) The Public Meeting

Approximately 25 people attended the public meeting including local residents and officials, and representatives from the EPA and the Commonwealth of Pennsylvania. As discussed in Section I of this document, EPA presented an overview of the Site history including findings of the studies conducted to date, and the alternatives evaluated for remediation including EPA's preferred alternatives. A copy of the public meeting transcript and letters forwarded by interested citizens/parties are located in the Administrative Record.

Questions and comments regarding the Proposed Plan that EPA received during the public meeting and during the public comment period are grouped by topic and summarized below. The EPA response follows each of the questions or comments presented Part I, Summary and Response to Local Community Concerns, details questions and concerns raised by members of the community. Part II, Response to PRP's Technical Questions, addresses issues raised by a Potentially Responsible Party.

(2) Part I- Summary and Response to Local Community Concerns

A. General Concerns

1. Who are the responsible parties?

EPA Response: The Potentially Responsible Parties (PRPs) for this Site include those owning property where wastes have been placed, as well as the generators, transporters, and other parties who have handled the waste or contributed to its uncontrolled nature. The PRPs for this Site at this time include Westinghouse Electric Corporation, Pfaltzgraff Company, Mr. Fred Shealer, and the Estate of Sarah Culp.

2. What material or action did each party contribute to the Site to make them responsible parties?

EPA Response: Westinghouse Electric Company contributed hazardous substances such as chlorinated solvents and paint waste containing lead and chromium. Pfaltzgraff contributed liquid waste with clay like consistency which contained lead.

3. How cooperative have the PRPs been at the other two Superfund sites in the Gettysburg area?

EPA Response: The PRPs are under a unilateral order (UAO) to do the work at the Westinghouse Elevator Plant Site. At the Hunterstown Road Site, EPA was not successful in negotiating a Consent Decree with the PRPs, and therefore, EPA is funding the design work at that site. Once the design work is complete at the Hunterstown Road Site, EPA will investigation its options for implementing the clean-up action.

4. Department of Defense (DOD) wastes (from Letterkenny and Mechanicsburg Naval Supply Depot) were found on the Culp property. Will the DOD be a responsible party? How did DOD wastes get to the Culp property?

EPA Response: Currently DOD is not considered as a RRP, however investigations are continuing.

5. Were site areas ever tested for radioactive or nuclear wastes?

EPA Response: It is routine to perform an initial Site aassessment field screening for radiation with direct reading instruments. The same procedures were applied to this Site by the EPA

contractor. No significant radioactivity levels above the background levels were reported.

6. On areas to be fenced, will Superfund Site signs be placed to inform the public of these areas?

   EPA Response: Signs will be posted every 250 linear feet along the fence-line (minimum one sign per side) to warn trespassers and others in the area of the contamination and dangers associated with the Site.

7. Subsurface contaminated soil can contribute contamination indirectly via volatilization through uncontaminated soil under basements. Will basements be tested for VOC vapors?

   EPA Response: At the present time there is no plan to test nearby residences' basement air for volatile organics compounds related to the Site. The predominant contaminants in subsurface soils are of an inorganic nature, as only low concentrations of volatile

   organic constituents in soil have been detected in previous studies. However, if during, or as a results of the remedial efforts, EPA identifies a concern for air quality in the basements of nearby residences, the appropriate testing will be performed

8. Will the public be informed of any changes to this Plan?

   EPA Response: There are currently no significant changes to the Proposed Remedial Action Plan as shown in the ROD as a result of the public meeting and comments. However, if a need for a significant change to the remedy develops, EPA will issue Fact Sheets and conduct a Public Meeting to inform the public of these changes. EPA would also amend the ROD or issue an Explanation of Significant Differences to address these changes.

9. If any changes are made to the Proposed Plan will you hold another public meeting?

   EPA Response: See response to question #8.

10. If any changes to the ROD are made in the future will the public be informed?

    EPA Response: See response to question #8.

11. Will any properties other than the Culp or Shealer properties have deed restrictions placed on them?

    EPA Response: There are currently no other properties expected to be deed restricted; however, the need for additional deed restrictions will be determined during the Remedial Design.

12. What will the exact wording of the deed restrictions be?

    EPA Response: The wording of deed restrictions will be determined during the Remedial Design. The deed restictions will require restrictions on the use of property cleanup would adversely impact groundwater and/or groundwater cleanup system and it's operation.

13. When will the deed restrictions be removed?

    EPA Response: The deed restrictions will be removed when the remedial action has been completed to EPA's satisfaction and the property owner decides to remove the restrictions.

14. If EPA takes any more samples (air, soil, water) on my property will you provide

split samples?

EPA Response: EPA will provide split samples upon request from the property owner if additional samples are collected on residential property.

15. Will you obtain building permits from the county and township prior to any work?

EPA Response: Superfund cleanup actions involving on-site remedial construction do not require local regulatory permits, but must comply with the substantive requirements of all relevant and appropriate regulations. Applicable local permits will be obtained for related off-site activities, as necessary.

16. Will there be an on-site field office during construction?

EPA Response: Generally, if the duration and nature of remedial activity on a Superfund site warrants an on-site field of office, then one will be situated on or near the Site. Given the selected remedial alternatives for this Site, it is likely that a field office will be established during remedial activity.

17. What is the approximate time frame until the cleanup begins?

EPA Response: EPA estimates that the cleanup will start in approximately two years. However, this is dependent on the length of negoaations with PEPS and the design time frame estimated by the PRPs.

18. Why was the fence only installed along Culp Road, as it is not preventing hunters from entering the Site?

EPA Response: EPA installed the fence to prevent trespassers from entering the Site from Culp Road and being exposed to contamination. In addition it would prevent any dumping of hazardous waste. Due to the size of the Site. EPA cannot completely prevent trespassers from gaining access to the Site, however, the proposed remedy requires installation of a fence along all sides of the contaminated soil area.

19. Does the Pennsylvania Department of Environmental Protecticn (PADEP) agree with EPA's Proposed Plan?

EPA Response: PADEP has reviewed the Proposed Plan and concurs with EPA's recommended clean-up actions.

20. Did the Agency for Toxic Substances and Disease Registry (ATSDR) prepare a report and, if so, is this report part of the decision process and included in the Record of Decision?

EPA Response: A TSDR prepared two reports. These reports were not part of the long term remediation decision process. A TSDR and EPA calculate risks posed by the site differently. A TSDR looks at the current effects that the Site has had on the surrounding community. EPA evaluates the potential future impacts posed by contamination to the community, using worst case scenarios. ATSDR recommendations are generally considered for a removal action such as provision of home treatment units at this Site.

21. How far west of the Site has EPA sampled groundwater; specifically ground water along Goldenville Road?

EPA Response: EPA sampled two wells in the area along Goldenville Road and the results indicated that contamiantion was not consistently present.

22. Did EPA sample ground water in the vicinity of 435 Goldenville Road?

EPA Response: EPA did not sample in this area because the ground water studies and local geology indicate that contamination is not moving past the Western Tributary. The ground water is flowing into the Western Tributary. In addition, sampling results immediately west of the tributao indicate that the Western Tributary acts as a barrier to the spread of contaminants in that vicinity.

23. What direction does the ground water flow from Goldenville Road?

EPA Response: The ground water flow is consistent with the topography in the area, which is east to west from Goldenville Road to the creek where it discharges.

24. Are contaminants entering the Western tributary, and if so; what amount, and are there any risks to animals or humans downstream?

EPA Response: The Western Tributary is a ground water discharge point. Although the primary contaminants associated with the Site groundwater are chlorinated solvents, sampling of the Western Tributary did not reveal the presenqe of chlorinated solvents. EPA believes that the water in the Western Tributary is causing the contamination to be diluted to undetectable levels, therefore not posing any risk, downstream.

25. A community member recalled initial sampling results indicating contamination in the SPCA well which is located near wells on his/her property. The community member asked EPA why the SPCA well is now reported by EPA to be clean and outside of the contaminant area.

EPA Response: EPA sampled the SPCA well on several occassions. Sampling results from this well revealed contaminations only one time, and at very low levels. EPA has not found contamination in this well on a consistent basis.

26. Why were contaminants detected in a residential well if the natural flow of the Site ground water moves away from that household?

EPA Response: Although the natural flow of ground water from the Site is towards the creek and away from this particular residential well, any heavy pumping of a well in the area, either residential or municipal, has a tendency to draw other water towards that well.

27. A community member requested clarification on ground Water flow on the western portion of the Culp property.

EPA Response: Because of the dipping bedrock, ground water is under considerable pressure in this area. This is the reason for the artesian conditions (discharge areas) in this area. Artesian conditions allow water to flow from wells because of the pressure of the water at that depth.

B. Groundwater Extraction and Treatment System

1. Where will the trench be located at the Shealer area? How long, deep, and wide will this trench be? Has this collection trench method been used before? If it has, what was the percent of success and failure? What will the projected loading rate be on the receiving stream? Would this amount increase during periods of excessive rainfall?

EPA Response: EPA has established performance standards in the ROD for the groundwater extraction and treatments system. The groundwater remedial alternative described in the ROD was evaluated and selected for implementation based on its

technical merits. This alternative was conceptual in nature and therefore, the exact location and detailed specifications for the groundwater extraction and treatment system are not currently defined. These details will be developed during the Remedial Design. Collection trenches are commonly used for dewatering at a construction site or even for diverting water from a house prone to basement flooding.

2. Gravity and water will drive contaminants down. What will drive the contaminants horizontally into the trench?

EPA Response: Groundwater flow, including the associated contaminants will be driven by hydraulic gradients and will migrate horizontally along bedding planes and through underlying confining layers.

3. Will the trench be fenced to prevent people and animals falling in?

EPA Response: When collection trenches are constructed to intercept contaminants in groundwater, they are typically backfilled to grade or otherwise secured to mitigate a trip or fall hazard.

4. Will the trench be maintained so as to prevent clogging of collection pipes?

EPA Response: The groundwater collection system will be designed to minimize obstructions and prevent clogging. Furthermore, a monitoring and maintenance program will be implemented to ensure that the system is functioning properly.

5. What will happen to excavated trench material?

EPA Response: If collection trenches are constructed the excavated material will be stockpiled tested and managed accordance with ARARs and the Site clearnqa criterion for soil. Any materials having an average concentration above the cleanup criterion would be disposed of off-site to an approved facility.

6. How will cold temperatures affect the trench collection system?

EPA Response: The collection/extraction system will be designed, constructed, and maintained to function properly in the Site environment for a minimum of 30 years. This includes the potential effects of cold temperatures. Groundwater temperature remains above the freezing point during cold weather, although the ground surface may get freeze during severe cold weather, the water below the surface would be at the same temperature throughout the year.

7. Would you be able to detect a leak in the extraction pipe system?

EPA Response: There are several proven methods for identifying a line leak. The operation and maintenance plan, which will be developed during the Remedial Design, will address inspection procedures for leak detection.

8. Could the projected loading rate on the stream be increased in the future?

EPA Response: Potential loading rates on the receiving stream, the Western Tributary and/or Rock Creek, from the treatment system will be determined during the Remedial Design and may be varied over time to optimize system performance. The projected loading rate from the treatment system is not expected to be burdensome or significant relative to steam capacity.

9. If a pump fails in the pump and treat system, could water drain back down into the collection trench?

EPA Response: If a pump fails the water in the piping system leading to the pump could drain back to the trench. However this will be prevented by proper design of the piping system.

10. How of ten will the discharge into the stream be tested for polutants?

EPA Response: Discharge of treated groundwater to the stream will be tested in accordance with the substantive requirements of the NPDES program.

11. Would the present monitoring wells on residential property be used for the pump and treat extraction?

EPA Response: Monitoring wells are not typically designed or constructed to function as extraction wells and are therefore not usually used for such apurpose. However, the actual components of the extraction system will be determined in the Remedial Design.

12. Would added monitoring wells be installed to check for plume migration?

EPA Response: A system of monitoring wells will be designed and installed to monitor the cleanup progress. The number and location of these monitoring wells will be determined during the Remedial Design.

13. Why is collected water being pumped upgrade to the Culp area for discharge?

EPA Response: The groundwater collection and treatment system has been evaluated and selected for implementation based on a conceptual arrangement. Since the pump and treatment system would be located in the Culp Area away from the residences, the Culp Area appears at present to be the most suitable location for the discharge. The final arrangement and engineering specifications for the remedy will be developed during the Remedial Design.

14. If a better technology is found for groundwater remediation in the future, could it be implemented for use at this Site?

EPA Response: The effectiveness of the groundwater remedy will be evaluated periodically. EPA will consider alternate technologies, if the selected remedy found to be non protective. In addition, EPA would consider any request from PRPs for an alternate alternative technology which may be cost effective and can achieve the same cleanup goals.

15. Could the stream discharge increase the acreage of the wetland areas?

EPA Response: The discharge of treated effluent from the groundwater treatment system is not expected to significantly increase wetland areas surrounding either the Western Tributary or Rock Creek. The potential for adverse affects will be evaluated in the Remedial Design. Furthermore, the remedy must also comply with location and action-specific ARARs as set forth in the ROD.

16. Chlordane present on the Shealer site could leach into the collection trench. Can the stripping tower remove chlordane? Heavy metals?

EPA Response: Chlordane and heavy metals are not found in significant concentration in the Shealer Area groundwater. The air stripper will be designed to effectively (99+%) remove principal compounds i.e. volatile organic compounds (VOCs) from extracted groundwater. The treated effluent from the stripper system must comply with the substantive requirements of a NPDES permit. Hence, if chlordane, metals, or other non-volatile contaminants are detected in the extracted groundwater above the discharge permit levels

(which is not expected), additional treatment would be provided, if necessary, to achieve effluent quality requirements.

17. How long will it take the pump and treat system to remove the Dense Non Aqueous Phase Liquids (DNAPLs) from the beneath the Site?

EPA Response: For estimating cost, EPA assumed that the pump and treat system will take 30 years to remove the DNAPLs. However, several factors, such as the amount of contamination and the effectiveness of the pump and treat system, will increase or reduce this amount of time. EPA will monitor the pump and treat system on a regular basis to assess its effectiveness.

18. Would the pump and treat system need to be replaced during the time span that EPA is projecting it will be in operation?

EPA Response: EPA will monitor the pump and treat system to ensure that it is working properly and will maintain, mostly, or replace the system as needed.

19. How far would contamination spread prior to the expected start of the pump and treat system?

EPA Response: EPA does not expect the contamination to spread significantly before the start of the pump and treat system. EPA estimates that the contaminated areas of the Site have developed over the 20 years since dumping first occurred, and therefore would not indicate a significant movement of contaminants.

20. Why were the proposed pump and treat wells not located by the well with the highest contamination?

EPA Response: EPA will pump from the most contaminated areas, and the wells depicted in the drawings were only identified for conceptual purposes. The location and effectiveness of the pump and treat wells will be evaluated during the design stage of the cleanup.

21. Are three wells depicted on EPA's drawing to be used for the pump and treat system or to be used as monitoring wells?

EPA Response: EPA's drawings on the pump and treat system were conceptual for the public meeting. The wells shown on the map were selected for demonstration purposes only. EPA will analyze specific well locations during the design phase of the cleanup. EPA will consult any residents who may be affected by the placement of a well on the their property.

22. Would discharge from the pump and treat system have an adverse impact to the wetlands?

EPA Response: The discharge from the treatment plant will be required to meet state discharge limitations and will be routinely monitored for compliance. EPA will analyze the impact to the wetlands during the design phase of the cleanup.

23. What did "industrial users" refer to in the reference to the pump and treat system discharge locations?

EPA Response: Treated water may be used for farming poses or for other industrial purposes rather than being discharged into a tributary.

24. What would be the potential for dewatering residential wells then the pump and treat system is operational?

EPA Response: EPA will take steps to prevent the possible dewatering of

residential wells by monitoring the effects of ground water pumping to minimize the impact on other residential wells and using only the minimal amount of ground water needed to capture contamination. Additionally, EPA will routinely evaluate the pump rates and adjust them as appropriate. If a residential well is dewatered, EPA will review the data and determine whether the pump and treat system was a factor and whether it would need any adjustment.

25. A community member raised the issue of the location of the proposed collection trench. As indicated on EPA's drawing, the collection trent would be outside the fence, thereby on the community members property.

EPA Response: EPA's drawings reflect only proposed locations for the purpose of the public meeting. The exact location of the trench and feasibility of locating the trench in a particular area will be considered during the design stage of the cleanup.

26. How will the contaminated ground water be forced into the collection trench?

EPA Response: Gravity will be the primary force drawing wound water to the collection trench. The collection trench will be located downgradient of the area of highest contamination, which is the shallow water bearing zone. EPA will construct the trench to a depth of approximately 30 feet or to the top of the bedrock, whichever is less.

27. A community member noted that the well with the highest contamination (approximately 108,000 ppb) is approximately 37 feet. The community member questioned why it wouldn't be more beneficial to excavate the contamination around this well as opposed to constructing a 30-foot deep trench.

EPA Response: The area of contamination around this well is not clearly defined and may require significantly more excavation than currently anticipated with constructing the proposed trench. The trench will continually capture ground water contamination from a much larger area than would the excavation of soil from around the well.

C. Soil Excavation and Off-Site Disposal

1. Will air monitoring instruments be direct or indirect reading instruments? What will happen if elevated readings are found in air samples?

EPA Response: An air monitoring and fugitive emission control contingency plan will be developed during the Remedial Design prior to initiating soil removal activities. If elevates levels are found, actions will be taken to reduce the elevated levels. These actions may include wetting the soil surface to be excavated or spraying during the excavation or providing temporary barrier to prevent dr emissions. Also work stoppage regiment could be implemented to reduce overall exposure levels.

2. Will provisions be made to prevent off-site soil migration via wind and water?

EPA Response: A storm water control plan and an erosion and sedimentation control plan will be developed and implemented to control transport of soil and sediment during remediation activities. Contaminant migration via wind is addressed in the response to question #1.

3. Where will the staging area for removed soil be located?

EPA Response: The location of the staging area(s) for the contaminated soil will be determined during the Remedial Design.

4. Will wastes be treated to make them less toxic prior to removal to the staging area?

EPA Response: The excavated soil that exceeds the cleanup criteria will be securely staged on-site until arragements are made for transportation to an approved off-site treatment/disposal facility. The selected remedy for soil does not include a provision for on-site treatment.

5. What types of tests will be performed on soil and the excavated areas?

EPA Response: During the excavation of contaminated soil, confirmatory soil sampling will be performed in a representative manner to ensure that the soil cleanup criteria hay been met. The sampling and analysis procedures will be developed in the Remedial Design.

6. What amounts of toxic materials will be allowed to remain in the excavated area?

EPA Response: All soil at the Site with lead concentrations below the cleanup criterion of 400 mg/kg will be permitted to remain on-site.

7. A community member requested clarification on the type of contaminants in the Culp Area. The community member stated that it was his understanding that the only soil which needed to be removed was located on the the Shealer property.

EPA Response: In addition to the soil contamination in the Shealer Area, EPA discovered lead and chromium contamination in the soils of the Upper Culp Area. The Upper Culp Area soils contain high levels of contamination which pose potential risks to human health arm the environment. As a result, EPA proposes to excavate these soils during the clean-up process.

D. Community Supply Well

1. Will this be a public water supply?

EPA Response: A community water supply system will be designed, constructed, operated and maintained as rpproved by EPA. This system will serve the five (5) currently affected residences; hence, it is not considered a public water supply because it serves fewer than 25 people and has less than 15 connections.

2. Would water be provided under pressure?

EPA Response: The water will be supplied under pressure to the affected residences as detailed in the response to question #1.

3. Will any drinking water standards apply to the community well?

EPA Response: The community well operation will be designed to meet appropriate requirements of the National primary Drinking Water Regulations (NPDWRs) promulgated under the Safe Drinking water Act (SDWA). (see section XB in the ROD which covers ARARs)

4. Will the well be regularly tested for priority pollutants? Bacteria?

EPA Response: Testing of the water from the community supply well will meet appropriate requirements of the NPDWRs. Thus, water would be tested for Bacteria and the compounds for which Maximum Contaminants Levels (MCLs) have been established. These compounds include many priority pollutants, in particular they include principal groundwater contaminants at the Site.

5. Will residents be informed of community well test results or problems?

EPA Response: All residents can request and are entitled to copies of test

results and related information pertaining to the water quality of the community supply system.

6. If any homes are built in the neighborhood at a future time could there be hookups to the well?

   EPA Response: The selected remedy does not include a provision to supply water to accommodate future development.

7. Will the alternate water supply be available prior to installation of the pump and treat system?

   EPA Response: A schedule for the implementation of remedial activities will be developed during the Remedial Design. EPA views the community supply system as a high priority activity among the remedial measures to be implemented it this Site. It will be completed prior to completion of the pump and treat system.

8. Have you taken any action to determine if anyone will allow you to put a community well on their property?

   EPA Response: The necessary property acquisitions, easements, and/or access agreements will be identified and obtained during the Remedial Design. EPA has not contacted property owners at this time.

9. Who will maintain the well and plumbing system to our homes?

   EPA Response: The community supply system including the well and distribution network will be maintained by the PEPS performing the cleanup.

10. Could the water line be extended, if necessary, to the SPCA, for example?

    EPA Response: The selected remedy does not include a provision for water to be supplied to users outside the affected area.

11. Would you make it a priority to have the community well a place as soon as possible?

    EPA Response: See response to question #7.

12. Where would the proposed community well be located and how it will service the residences affected by the Site?

    EPA Response: EPA has not determined the exact location of the community well. EPA will consider several factors such as accessibility, permits to locate the well, and the effects on other residential wells before determining its location. EPA plans to design the well to provide a sufficient water supply for all affected residences. EPA will install the well as soon as possible so that a clean water supply will be available to the affected residents. EPA also will install the community well prior to the completion of the pump and treat system. After the well is installed, any persons re-locating into the area will be responsible for obtaining their own clear, water supply.

13. Who will be responsible for maintaining the proposed community well?

    EPA Response: EPA will negotiate with the PEPS to maintain the community well. If EPA and the PEPS cannot reach an agreement, EPA could order the PEPS to maintain the system or arrange for PADEP to maintain the system.

E. Future Use of Site Property

1. A community member asked how a composting plant can be proposed at the Site when the area is contaminated.

EPA Response: EPA is conducting clean-up work on portions of the Site which are contaminated EPA does not intend to prevent development on other areas that are not contaminated and use of which would not impact the Site.

2. A community member raised an issue concerning the county's use of the Culp Property next to the Site.

EPA Response: EPA has no authority to prevent development on areas of the Site that are not contaminated.

3. Could the areas with soil contamination be used for farming once the contamination has been removed?

EPA Response: After the direct adverse human health threat is removed due to the soil contamination, if the land is suitable for farming it could certainly be used for the farming. However, EPA will prevent any farming activity that will impact groundwater cleanup at the Site.

4. In the future, could a well be drilled on the Site?

EPA Response: A well could only be drilled on the Site after the cleanup is achieved.

(3) Part II-Response to PRP's Teghnical Questions

1. The description of the Culp Tributary in the PRAP should indicate that it is an intermittent stream.

EPA Response: The description of the Culp Tributary provided in the ROD, which supersedes the PRAP, indicates that it is an intermittent stream.

2. The discussion of cancer risk regarding a 1 x 10-6 incremental risk level should indicate that this corresponds to a risk of one additional person in one million (rather than 1 in 10,000).

EPA Response: The discussion of the cancer risk provided in the ROD resolves this discrepancy.

3. The PRAP should be revised to indicate that the ecological receptors do not appear to reside in the tributary due to its intermittent nature.

EPA Response: This information has been addressed in the ROD as follows: "Two sediment samples collected from the Culp Tributary located on the Culp Area portion of the Site showed unacceptable zinc levels for ecological receptors which may reside in the intermittent tributary."

4. The discussion of lead levels in soil should be revised to indicate that some of the soils in the Shealer and the Upper Culp areas have lead levels that exceed EPA action level.

EPA Response: The word "some" has been included in this discussion in the ROD.

5. The capital cost (total) for fencing appears to be excessive ($164,000).

EPA Response: EPA agrees. The capital cost for fencing has been revised as provided in the ROD.

6. The costs for Alternative 2 appear to require some correction. The estimated present worth of the Upper Culp Area fence assuming a capital cost of $122,748 and an annual operation and maintenance cost of $1,500 is $145,863 instead of $192,093.

EPA Response: The estimated present worth cost of the Upper Culp Area fence has been revised as provided in the ROD.

7. The no action cost does not include costs for five year review:

EPA Response: The present worth cost and capital cost of Alternative 1 are estimated to be $0 since there would be no action (reference: EPA Guidance for Conducting Remedial Intvestigations and Feasibility Studies Under CERCLA, October 1988).

8. The second bullet should be removed, as Alternative 4 (in the PRAP) already includes reinjection of treated groundwater.

EPA Response: EPA agrees. This information has been omitted from Alternative 4, as provided in the ROD.

9. The cost for Groundwater Alternative 5 appears to require correction as follows:

- Total capital costs do not appear to include the cost of the Upper Culp Area fence, and

- Fence capital costs and operation and maintenance/costs should be corrected as described earlier under Alternative 2 on page 12 of the PRAP

EPA Response: The cost table for Groundwater Alternative 5 has been revised as presented in the ROD.

10. The costs for Soil Alternative 3 do not include costs of disposal for soils excavated from groundwater collection trenches. (This cost is included with soils for Soil Alternatives 4 and 5.) If these soils are not contaminated above action levels, this may not be a major issue. However, given that this is the USEPA's proposed alternative, the Proposed Plan should explicitly state that the recommended alternative does not include off-site disposal of these soils.

EPA Response: The costs shown for Soil Alternative 3 in the ROD include the handling costs for soil excavated from the groundwater collection trenches. If the excavated soil exceeds the lead cleanup criterion of 400 mg/kg, additional costs will be incurred for off-site disposal. The costs shown for Soil Alternative 3 are only approximate and are based on currently available Site information.

11. The cost table for Soil Alternative 6 only includes costs for institutional controls; the actual cost for cap construction is not included.

EPA Response: The cost table for Soil Alternative 6 has been revised as presented in the ROD.

12. The PRAP states that the SDWA requires remediation to maximum contaminant levels or 10-6 health-based levels; we are not aware of a requirement for remediation under the Safe Drinking Water Act.

EPA Response: EPA agrees. The reference to the SDWA requiring any remediation at a superfund site in the PRAP has been removed in the ROD.

13. Also, the PRAP refers to the monitoring requirements oil the Pennsylvania Hazardous Waste Management Regulations. The Commonwealth of Pennsylvania has issued public notice that Act 2 (1995) of the Pennsylvania Legislature supersedes previous regulations as the applicable or relevant and appropriate requirements for remedial action in Pennsylvania.

EPA Response: The monitoring requirements of Pennsylvania Hazardous Waste Management Regulations are still in effect. The Land Recycling and Environmental Remediation Standards Act (Act 2) became effective on July 18, 1995 after issuance of the PRAP, and it deals with process of setting the cleanup standards for waste sites. Once the cleanup criteria are set, the monitoring of the cleanup still has to meet the requirements of Pennsylvania Hazardous Waste management

Regulations.

14. The effectiveness of Soil Alternative 6 (cap system) in overall protection of human health and the environment (see page 20) is not discussed in this section.

    EPA Response: A statement on the effectiveness of Soil Alternative 6 in overall protection of human health and the environment has been included in the ROD.

15. The PRAP states that off-site transportation and disposal of sediments would have to comply with Resource Conservation Recovery Act (RCRA) standards. This sediment is not a RCRA regulated waste and would only have to meet Pennsylvania Solid Waste Requirements for transportation and disposal.

    EPA Response: EPA agrees. A reference to RCRA standands has not been included in the ROD.

16. On page 29 of the PRAP, Alterative 2 should read Alternative 4.

    EPA Response: This information has been correctly presented in the ROD.

17. In the PRAP, the present worth cost for Soil Alternative 6 (cap) does not include the present worth cost of institutional controls ($53,800). Also, the alternative cost for off-site disposal (Alternative 3) does not include the possible cost associated with soils removed from the groundwater collection trenches.

    EPA Response: The PRAP and ROD state that the provisions (and costs) of Alternative 2, Institutional Controls, apply to the alternatives for all Site media. The costs shown for Soil Alternative 3 are only approximate, as the level of contamination and appropriate disposal methods for the excavated soil associated with the collection trenches is unknown at this time.

18. The costs shown for groundwater are not consistent with those shown for the corresponding groundwater alternative on page 14 of the PRAP.

    EPA Response: This information has been correctly presented in the ROD.

19. Also, the preferred soil alternative assumes that soil excavated for construction of groundwater collection trenches does not require off-site disposal or on-site containment.

    EPA Response: See response to question #17.

20. Additionally, the plan should note that if residential use of water were to discontinue, then providing alternate water supplies would not be required.

    EPA Response: If the need for a potable water supply were to cease, EPA would discontinue the operation of the community supply well system.

21. Finally, we believe that the plan should be more explicit in recognizing that the volume and extent of materials to be remediated may be revised based upon updated information that may be obtained as part of the remedial design process.

    EPA Response: The performance standards in the ROD specify only the cleanup criteria for Site media and not the volume or extent of materials to be remediated.

RECORD OF DECISION
SHRIVER'S CORNER SITE

DECLARATION

SITE NAME AND LOCATION

Shriver's Corner Site
Straban Township, Adams County, Pennsylvania

STATEMENT AND PURPOSE

Record of Decision (ROD) presents the selected remedial action for the Shriver's Corner Site in Straban Township, Adams County, Pennsylvania (the "Site"), developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 as amended by the Superfund Amendments and Reauthorization Act, (CERCLA), 42 U.S.C. §§ 9602 et. seq. and is consistent, to the extent practicable, with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Part 300.

The information supporting this remedial action is contained in the Administrative Record for the Site.

The Commonwealth of Pennsylvania not concured with the selected remedy at this time.

ASSESSMENT OF THE SITE

Pursuant to duly delegated authority, I hereby determine, in accordance with Section 106 of CERCLA, 42 U.S.C. § 9606, that actual or threatened releases of hazardous substances from this Site, as discussed in the Summary of Site Risks, if not addressed by implementing the response action selected in this Record of Decision, may present an imminent and substantial endagerment to public health, welfare or the environment.

DESCRIPTION OF THE SELECTED REMEDY

The selected remedy for the Site will meet the requirements of the National Contingency Plan (NCP) 40 CFR Part 400 §300.430 (e)(I) (A)(2) and §300.430 (e)(I)(C) by reducing groundwater contamination levels to the Maximum Contaminant Levels (MCLs), set forth in the National Primary Drinking Water Regulations, 40 CFR §§ 141.11-12 and 141.61-62 (NPDWRs) or to 1 x 10-6 health-based risk levels for the compounds for which MCLs are not established. The selected remedy will also protect the public from exposure to contaminated groundwater and contaminated soil. The selected remedy will also protect aquatic life by removal of the contaminated sediment. In summary, the selected remedy will provide both short-term and long-term protection of human health and the environment. The selected remedy as described below is the only planned CERCLA response action for the Site.

The elements of the selected remedy are:

- Provision of an alternate water supply to the currently a affected residence from a single community supply well.
- Construction and operation of a groundwater extraction and treatment system that will contain, extract and treat contaminated groundwater. The on-site treatment process will include air-stripping with carbon adsorption for air emission control.
- Discharge of the treated groundwater to the Western Tributary, and/or Rock Creek, or for use as a nonpotable water supply.
- Provision of periodic groundwater monitoring during and after completion of the groundwater remediation.
- Excavation and disposal off-site all contaminated soil from a the Upper Culp Area and Shealer Area that exceed the cleanup criterion.
- Excavation and disposal off-site all contaminated sediment from the Culp Tributary that exceed the cleanup criterion.

DECLARATION OF STATUTORY DETERMINATIONS

The selected remedy is protective of human health and the environment, complies with Federal and State

requirements that are legally applicable or relevant and appropriate to the Remedial Action and is cost-effective. This remedy utilizes permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable and satisfies the statutory preference for remedies that employ treatment that reduces toxicity, mobility or volume as a principal element.

Because some contaminated groundwater may remain at the Site, the 5-year site reviews will apply to this action, as required by Section 121 (c) of CERCLA, 42 U.S.C. § 9621 (c), to ensure that the remedy continues to provide adequate protection to human and health and the environment.

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Thomas C. Voltaggio, Director
Hazardous Waste Management Division
U.S. EPA, Region III

Dated